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THE MOST NEGLECTED ASPECT OF CHEMOTHERAPY

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THERE are two chief approaches to chemotherapeutic problems, the first and most spectacular of which is exemplified by the use of penicillin, the sulfa drugs, and streptomycin. The second, and indirect approach, viz., the stimulation of the natural defensive powers of man's body, is of much greater importance than has been realized, because it conditions somewhat the success of these antibiotic drugs. It is the purpose of this address to focus attention on these so-called "host factors," and their possibilities in modern chemotherapy.

In streptococcal infections, our own experiences with this aspect of the problem really antedated our experience with the sulfa drugs. We had prepared an antistreptococcal serum, the objective of which was to deprive hemolytic streptococci of their virulence, rather than to kill them; for it was already well understood that adequate natural resistance forces of the human host were quite capable of eradicating many subacute streptococcal infections which otherwise were eventually fatal. Of a series of 125 cases of this sort, more than 90% of them recovered with the use of this serum. Among the latter were six cases of infantile erysipelas. All recovered, when usually the outcome is quite the opposite.[1]

However, it soon became clear that the results were not achieved as the result of specific antibodies contained in the serum and for the following reasons. In the first place, the doses with which we obtained maximal effects were very small—averaging from 0.01 c.c. to 0.1 or 0.2 c.c. In the second place, the action of a specific antibody could not explain the healing of varicose ulcers of long standing which had become infected with an erysipeloid type of hemolytic streptococcus. Finally, the clinical responses of the patient were not those that could easily be attributed to an antiserum. The latter included a leucocyte rise, as well as an increase in blood calcium and blood phosphate, and sometimes in the chlorides. In addition, there was also a marked fluid shift from the water-logged tissues back into the vessels, thus causing a disappearance of the general and local edema associated with severe infections. These phenomena as a whole savor somewhat of a "de-sensitizing" or an "anti-shock" effect, a consideration that I shall amplify presently.

That the clinical responses to the serum were not strictly specific may be inferred from similar results that many years before were obtained in erysipelatous inflammations by the use of ultra-violet and X-radiation. Furthermore, favorable clinical results have been elicited from hyperthermia and from the use of nonspecific protein, particularly when these agents are not employed in too large doses. Thus, two or three decades ago we heard a great deal about protein shock therapy, the histamine-like shock usually resulting from too large a dose of the foreign protein, or as the result of its introduction directly into the blood stream. These extreme measures are largely responsible for obscuring the undoubted clinical value associated with the small, desensitizing dose, which presumably is anti-shocking in its effect.

As to the biochemical implications of the action of foreign protein parenterally introduced,

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all too little is known. However, during the last decade, a number of studies from rather diverse angles is shedding considerable light on some of the mechanisms presumably involved. During the war period, the French physiologist Ungar[2], working at the University of Oxford in England, was able to demonstrate a remarkable phenomena in animals. When the latter were subjected to measured doses of trauma which were sublethal, the animals developed counter-shocking substances in their serum. Resistance against the killing effects of traumatic shock could be passively transferred to a second animal as the result of injection of the serum from the first animal which had received sublethal doses of trauma. In other words, the serum of the first animal contained a counter-shocking substance.

This effect was eventually traced to the elaboration by the spleen of a hormone-like substance which the author calls splenin. Breakdown products of protein liberated as the result of trauma are believed to act first through the pituitary, which in turn stimulated the adrenal, and finally the spleen. We shall have more to say about this pituitary-adrenal syndrome in connection with the work of Selye.[3]

In 1937, Lassabliere[4] showed that it was possible to develop a considerable degree of resistance against cobra venom by injecting into an animal a whole host of non-specific agents. This study now finds its most plausible explanation in the work of Erwin Haas[5], of Hollywood's Cedars of Lebanon Research Laboratories. He has described a series of anti-invasins, whose function is to neutralize those substances of snake venoms which implement their rapid spreading throughout the tissues. These substances are of the nature of enzymes and are liberated from the spleen most likely. They are entirely distinct from the well-known antibodies which, as we shall see, also may be liberated from the lymphatic structures as the result of small injections of non-specific protein and other substances.

There is also recent evidence that other substances resident in the spleen and brain may be of an antibiotic nature. Thus, Nutini has been able to isolate from these organs substances which are capable of acting in vivo as well as in vitro; such bacteria as the staphylococcus aureus and the hemolytic streptococcus are deprived of their virulence. This is particularly interesting in connection with our own study, to which we have referred above, and whose objective was not directed at killing parasitic bacteria, but rather at changing their phase of growth from one involving virulence to one lacking this attribute. This work of Nutini[6] seems to be a more concrete realization of that aim.

Finally, we have rather formidable experimental evidence that the liberation of antibodies from the lymphatic tissues is not a dream, but very much of a reality. It would appear that, as a result of previous infection or the injection of small doses of specific antigen, antibodies can be stored up in the lymphocytes of the lymph glands, thymus, and spleen, etc. These antibodies can then be liberated in appreciable quantities as the result of a variety of non-specific stimuli. That is to say, if the antibodies were originally stored up against hemolytic streptococci, most any foreign protein is capable of bringing about their liberation into the circulation. Thus is explained a reaction long known to immunologists, which has gone under the name of the "anamnesic response." The word is really the antonym of "amnesia;" that is to say, the cells which were originally stimulated by an infection are said to "remember" the experience, so that on subsequent stimulation they behave as above related.

However, the cell products liberated as the result of stimulation are not of necessity protective in nature. Thus we know that under certain conditions, substances like histamine, adenosine triphosphate, and other rather toxic substances, may also be liberated. Perhaps the most extreme instance of this sort of thing occurs in the condition known as status lymphaticus, where it would appear that non-specific stimuli minimal in amount can result in the liberation of lethal amounts of unknown toxic substances.

All of this brings us to a consideration of what during the last decade has come to be widely known as the "alarm reaction," so named by its discoverer, Hans Selye. He has extended the list of non-specific factors capable of eliciting the effects discussed, well beyond the realm of the foreign protein. Thus, extreme cold, fatigue, emotional crises, deep anesthesia, etc., are among the stresses capable of developing varying degrees of shock. We have already referred to his work briefly in connection with the experiments on traumatic shock by Ungar.

His work suggests that as a result, presumably, of cell substances liberated by mild shock, the pituitary puts out adrenocorticotrophic hormone (ACTH) which results in the stimulation of the adrenals. The cortex of the latter gland then frees certain complex sterols, which are spoken of as adrenal corticoids. They have the general effect of neutralizing the harmful results of the original shock-producing stimuli. This comes about in part by their activation of the spleen to liberate splenin (Ungar). Incidentally, the clinical response is reminiscent of our therapeutic serum that we used so many years ago in treating hemolytic streptococcus infections. That is to say, there is a fluid shift away from the tissues and into the vessels, as indicated in part by copious diuresis and by recession of tissue edema. We may also have an increase of blood sugar, phosphates, chlorides, etc.

One of the most important of the adrenal hormones is cortin. As the result of continuous overdosage of this hormone, Selye claims to be able to produce experimentally such important pathologic conditions as malignant nephrosclerosis, periarteritis nodosa, and certain other conditions whose etiology has been obscure. It must be said that before this aspect of his work is accepted, it must be confirmed, and so far as I am aware, this has not yet been done. In any case, Selye also claims that when large amounts of cortin are given, the animal becomes more sensitive to sodium chloride. However, it can be counteracted to a considerable extent by the administration of ammonium chloride in the diet. Otherwise, the animal is likely to die prematurely.

This lowering of the threshold to sodium chloride experimentally is reminiscent of at least two situations in clinical medicine where the same situation obtains. The most important of these, of course, deals with a certain form of hypertension, and the other is involved with the edemas of allergy. The presumption has been that the sodium-potassium ratio of the tissues is altered in favor of an increase in the sodium ion, which helps to explain the fluid shift from the vessels into the tissues, thus accounting in part for the edema. In fact, this theory has been made the basis of certain diets that provide considerable increase in potassium salts.

Interesting in these connections is the dietary approach of Coca[7] in connection with nonreaginic allergy. Coca's chief criterion for this sort of allergic response is tachycardia, and it is interesting that this symptom is also of importance in the initial shock phase of Selye. His alarm reaction also includes such severe manifestations as hemorrhages, gastric ulcers, etc., and it is worth noting, perhaps, that Coca has related to the author cases of gastric ulcer which have been promptly cured as the result of restricting from the diet the offending allergen . He believes, too, that glaucoma represents the same sort of response, and has observed favorable results in the treatment of this disease.

Finally, these considerations are reminiscent of the now obsolescent A. C. S. serum of Bogomolets.[8] His form of treatment has received wide publicity, particularly in lay journals, and is regarded as an important measure in longevity, and is also reported by the Russian school as being useful in cancer, arthritis, and many infections.

So far as infections alone are concerned, it is to be noted that the size of the dose employed is definitely comparable to the ones that we used in the early 1930's in connection with the treatment of hemolytic streptococcus infections mentioned above. The general principle followed was one that kept the size of the dose considerably under the toxic or shock threshold. There was considerable relativity about its application, inasmuch as the varying susceptibilities of individuals to horse serum is well known to govern the degree of response. In any case, it is clear that doses above the toxic level give the impression of elaborating the cellular products where the toxic components are in excess of the protective substances. By the same token, the resistance to the infection appears seriously lowered.

One of the chief points that remains to be settled in regard to the efficacy of Bogomolets's serum is the question of its specificity. While in our own experiments, we started out by using an antistreptococcal serum, in order to control the non-specific factor, we also employed antidiphtheria serum, and certain other antisera. However, it eventuated that the diphtheria serum was used for the most part, and as far as we were able to tell, it was quite as effective as the anti-streptococcus serum itself. Therefore, we could only conclude that we were dealing with a non-specific serum effect which obtained its

results presumably by liberating antibacterial substances from the tissues.

We have already mentioned the occasional case of the simultaneous healing of varicose ulcers when they happened to have been infected with hemolytic streptococci which induced an acute erysipeloid about the lesion. This aspect of the situation was never followed up experimentally, although considerable attention has been devoted to the fracture-healing effects of the A. C. S. serum in this connection at the Cedars of Lebanon Hospital in Los Angeles.[9] The experimental results were definitely in favor of a decrease in the healing time of experimentally-produced fractures, and I am informed that this work has been extended with considerable clinical success in several centers. In view of our best knowledge today, it seems quite unlikely that any favorable results coming from the Russian serum are in any true sense serum specific.

Earlier in this discussion, I referred to the possibility that the therapeutic effect of the small doses of horse serum employed by us might be related to their "desensitizing effect," even though the latter is admittedly quite incomplete. It is a fact that the majority of the hemolytic streptococcal cases treated by us exhibited varying degrees of sensitivity to horse serum. It was also evident in many of the severely infected cases that, following administration of the serum, the highly virulent phase of the streptococcus was supplanted at least in part, by a growth-phase in which virulence was either deficient or absent.

In these connections, it is now desirable to refer to the work of Castaneda[10] in undulant fever. He finds that while the modern antibiotics effective against Gram-negative infections, will eliminate B. abortus from the patient's blood stream, they will not effect a permanent cure. This he believes is related to the fact that an allergy to the bacterium exists. The latter is clearly detectable by the skin test.

Accordingly, he prepared from the filtrates of B. abortus, a protein-free, polysaccharide-free remnant, by injection of which he was able to bring about a negative skin test in these patients. When the appropriate antibiotic was administered following their desensitization, the cure proved to be permanent in most instances.

In the absence of desensitization, he was able to demonstrate that in the macrophage cells of the tissues, the dregs of the infection persisted, even though the actively multiplying forms of the parasite had been eliminated from the blood stream. But apparently the bacterium led a hibernating existence in these large cells of the host, because, instead of the normal-sized B. abortus, the bacterium existed in very minute virus-like forms indistinguishable from the Rickettsia that cause typhus fever. It seems likely that these structures represent a dormant phase of the bacillus which is resistant to the antibiotic and which are later capable of reverting to its actively multiplying phase. These facts furnish a plausible explanation for the recrudescences of the disease in desensitized patients.

There is a substantial amount of evidence indicating a direct connection between the allergic state and deficiency of oxidation; and in turn, a connection between the latter and vulnerability to infection. Thus, we have the well-known example of an ordinarily avirulent organism, the streptococcus viridans, invading the tissues of the bronchial asthmatic and to such an extent that they eventually cripple the patient's lungs.

With this consideration in mind, it is pertinent to recall that the virus-like phases of a goodly number of bacteria require at least semi-anaerobic conditions for their propagation. Dienes[11] of Boston has demonstrated this to be the case with the pleuro-pneumonia group of organisms, as well as for such common bacteria as B. coli and B. proteus.

It is therefore not unlikely that when Castaneda desensitized his undulant fever patients, the oxidative capacities of their tissues are restored to normal to such an extent that the infecting B. abortus is no longer able to go through the hibernating phase that Dienes has shown is often resistant to an antibiotic that readily disposes of the actively multiplying or normal phase, so-called.

In this event, the cardinal importance of host resistance in chronic infections associated with a specific allergy to the infecting organism, becomes obvious. It may well be that until the practical importance of this consideration finds tangible recognition, we are doomed to fall short in our efforts to conquer such diseases as tuberculosis, bacterial endocarditis, certain fungoid infections as the strepthricoses, and others.

In any case, it is of more than passing interest that the work of Castaneda is the first clear-cut

demonstration of our working hypothesis that seemed operative in the cure of acute and subacute streptococcoses with which we were concerned so many years ago. The fact that our desensitization techniques were at best only partial did not permit of us drawing conclusions with the degree of certainty that is possible in Castaneda's work. Indeed, it has not been possible to desensitize permanently or completely against horse-serum sensitivity in man.

Lacking this, it seems increasingly impossible to neutralize one of the most injurious end-products associated with the allergic response. I refer now to histamine. Indeed, the on-rush in the development of anti-histaminics in the past few years is a difficult one with which to keep pace. And to a certain extent this holds for the clinical results which are being claimed.

There seems no reasonable doubt that at least a dent has been made in the common cold-sinusitis situation, although such claims as have been made recently in the "Reader's Digest" require much more extensive confirmation. When one recalls that the initial effect of the common cold is one of mild shock, as convincingly pointed out years ago by Locke,[12] one is compelled to take antihistaminic claims with a certain seriousness.

Even in tuberculosis, the antihistaminics are being given a trial, and with initial results sufficiently favorable to lend support to our position expressed above in relation to chronic infections whose destructive progress seemed to be paced by the allergic response.

In this connection, one must refer to the dramatic clinical results attendant on the widening sphere of action of the adrenotrophic hormone of the pituitary gland, known as A.C.T.H. At a recent conference[13] held under the auspices of the Armour Laboratories, it was reported that sufferers from asthma and hay fever have undergone a profound abatement of symptoms following administration of A.C.T.H. In asthma, the return to normal breathing has lasted for two to three weeks and after 48-hour treatment at six-hour intervals, hay-fever patients had their attacks halted for the remainder of the season.

It is now pertinent to recall the theory of Selye that the pituitary-adrenal pathway mediates a number of non-specific effects, ranging from non-specific shock effects to those of psychic disturbances. It may well be that the A.C.T.H. hormone released by the pituitary is the immediate chemical agent that initiates the chain of tissue responses that today includes the temporary cure of rheumatoid arthritis, rheumatic heart disease, psoriasis, etc.

It is also of interest to recall that in Selye's work an important experimental gap existed between the shock stimuli and the pituitary gland itself. In other words, he was at a loss to know what biochemical influence transferred the initial effect to the pituitary, there being no satisfactory evidence that this gland was under direct assault.

Possibly illuminating, therefore, are the recent studies of David Hume[14] of the Harvard Medical School. His work indicates that a new hormone from the hypothalamus is necessary for the activation of the pituitary and adrenal glands in their response to stress. If the hypothalamus is injured, the pituitary-adrenal pathway fails to respond; but injections of hypothalamic hormone produced a positive reaction in normal animals, as well as on those with hypothalamic lesions.

If it eventuates that the A.C.T.H. of the pituitary gland is liberated by this new hypothalamic hormone, a most important clarification of the pituitary-adrenal pathway will have been effected. Particularly is this the case in view of the startling physiologic effects of A.C.T.H. and the adrenal hormone, cortisone, in rheumatoid and other pathologic states, such as allergy.[15]

On the other hand, it is important to point out a certain interesting parallelism between the action of A.C.T.H. and horse serum and other foreign proteins. This concerns the size of the dose and the somewhat uncertain responses dependent on it, a consideration to which we have called attention earlier. It may mean that these new hormones represent a large part of the effect arising from the parenteral introduction of foreign protein, the net response in the individual case being a resultant of several variables among which are the degree of sensitivity to the antigen introduced, intactness of the hypothalamic-pituitary pathway, etc.

Such effects may either cancel each other out, up to a point, or they may have a mutually reinforcing action. In any case, it becomes easier to understand why for the most part the action of such a hormone as A.C.T.H. was more likely to be obscured by the conflicting side reactions; and when the latter were in abeyance, the dra-

matic reversal of number of pathologic effects often resulted. Such responses are now clearly reproducible because of our ability to use varying dosages of the new hormones in a relatively pure state.

This is not to say that the manifold responses of the foreign protein reaction have now become an open book. Far from it. Thus, it was almost invariably true in the writer's experience in hemolytic streptococcal infections, that a mild degree of serum sickness heralded the early and complete recovery of the patient. Particularly was this true when this "complication" disguised itself as an arthritis.

Of the hormonal balance implications, we of course know nothing, but we may think of these new hormones as paving the way to a more adequate knowledge of the mechanisms underlying this paradoxical manifestation of host resistance.

There is one final aspect of the latter subject that merits attention, and that is the one dealing with "artificial opsonins." Opsonins per se have always been thought to originate with the animal body exclusively, but the recent work of Nungester[16] permits a modified view. Working with several of the newer detergent compounds of high ammonia content, he found a noteworthy stimulation of the white blood cells and attendant phagocytosis.

Mice were protected against 100,000 fatal doses of pneumonia germs by these substances which, per se, had no bacteriostatic or bactericidal effect on the pneumococci — at least in the concentrations used in the experiments. While the work has not yet been extended to human cases, it represents a most promising departure in the creation of resistance of the host to infections.

SUMMARY

It is becoming clearer that many non-specific influences may result in the liberation of a variety of specific substances into the circulation. Some of these are hormonal and some contribute to an improved glandular balance. The latter appears to result in decreased sensitivity to foreign substances of any sort, and especially to infectious agents. By the same token, an improved glandular balance may tend to inactivate sensitizing effects of non-hormonal cellular products that also are liberated as the result of non-specific stimuli.

Whether foreign protein or other form of stimulus is employed to elicit such response, it is likely to be conditioned by the size of the dose, which should be well below the threshold required to produce even mild symptoms of shock. Naturally, this is in part a function of the patient's sensitivity. Therefore, it may vary considerably, thus providing ample opportunity for clinical judgment based on an intelligent discrimination between the symptoms of the disease per se and those resulting from the treatment.

It is of special interest that, despite the diversity of the stimuli evoking the liberation of these protective substances, to a considerable extent they seem to be channeled through a single endocrine pathway. The latter involves hormonal interdependencies between the hypothalamus the pituitary-adrenal, the lymphatic glands, and in all likelihood others not as yet clearly traced into the mechanism.

Inasmuch as our modern chemotherapeutic agents are dominantly bacteriostatic rather than bactericidal, they require the cooperation of specific antibodies, organ-antibiotics, counter-shocking substances, etc., for the final destruction of microorganisms.

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MENSTRUAL IRREGULARITIES

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NORMAL menstruation is not clearly understood. It is a combined vasomotor-hormonal phenomenon that occurs more or less regularly from puberty to menopause except for episodes of pregnancy. Since the normal physiology of menstruation is not understood completely, it becomes difficult to talk about disorders of this function. Our methods of diagnosing, managing, and treating menstrual irregularities and disorders will be given.

The uterus, the pituitary gland, the ovaries, and the thyroid gland, are separate organs that participate in the menstrual function. Disorders of any one of these organs upsets their interrelationships. We also know that abnormalities of the blood such as anemia, leukemia, etc., may enter into the picture. Some[1] have thought that liver derangements or deficiencies may play a part in irregular menstruation. Clinical trial with large doses of vitamin B has not given striking results. The original laboratory work and the original clinical trials were predicated upon the fact that a poorly functioning liver fails to inactivate circulating estrogens; thereby, allowing excess available estrogens to produce irregular and prolonged endometrial bleeding. The facts are that the laboratory animal experiments where this theory was applied were done in such a way as to be dealing with a markedly pathologic liver such as caused by chloroform poisoning; and that very few women with menstrual disorders have any liver pathology.

Presuming a normal anterior gland, normal ovaries, and a normal uterus the follicle stimulating hormone from the pituitary gland stimulates the growth of the primordial follicle into the developing Graffian follicle. The ovary, after this stimulation, produces follicular hormone. Slightly before mid-cycle in the mature woman the lutenizing hormone from the pituitary gland acts upon the follicle, causing it to rupture, to extrude the ovum, and to become a corpus luteum. From this point on, the ovary secretes corpus luteum hormone (progesterone) and estrogen until just before the beginning of menstruation, at which time there is a sudden withdrawal of estrogen and progesterone, followed by menstruation. Thus we have in brief the story of normal menstruation, but many of the intricate fragments of undiscovered knowledge are lacking.

Estrone and estriol are estrogenic substances found in the urine. Estradiol is the substance actually found in the ovary. Estrone and estriol are metabolic products of estradiol.

Our most common type of menstrual irregularity is associated with the anovulatory cycle. Normally, an adult woman ovulates each month until the menopause is approached. Around age 40 ovulation becomes a less regular event.

The anovulatory cycle is characterized by estrogen stimulation without progesterone hormone effects. Progesterone hormone is normally present during the last one-half of the menstrual cycle and is responsible for the secretory endometrium. There is no known estrogen level at which one can predict vaginal bleeding. Information on this score is quite meager. It is known, however, that estrogen does promote endometrial growth, and that its withdrawal will cause endometrial shedding with vaginal bleeding. Endometrial biopsy in cases of anovulatory bleed-

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ing may show endometrial hyperplasia or may show only a proliferative endometrium with microscopic evidences of hemorrhage, or may reveal an atrophic endometrium.

Profuse or prolonged functional bleeding may occur infrequently from a progestational endometrium.[2] Such cases are not easy to treat, and again precise details of etiology are not clear.

DIAGNOSIS

In our own clinic we have been impressed with the inaccuracies encountered in making an office diagnosis of functional or endocrine uterine bleeding. This is so much so that we now will not make a diagnosis of functional bleeding, other than in the very young patient, without the aid of diagnostic curettage accompanied by a pelvic examination under anesthesia. We have found, to our sad experience, that retained products of conception, submucous fibroids, or endometrial polyps have been organic causes for previously supposed functional bleeding. If the endometrial curettage biopsy demonstrates no organic findings we are justified in a diagnosis of functional bleeding. The basal metabolic test, as an aid to diagnosis and treatment in these cases, has been very much of a disappointment. We practically never enlist bioassay of body hormones as an adjunct to diagnosis of functional uterine bleeding. These determinations are expensive, many times unreliable, often misleading, and are unnecessary.

Vaginal cytology methods such as the Shorr stain or Papanicolaou stain, although helpful in the diagnosis and management of other endocrine disturbances, are not helpful in the diagnosis or treatment of functional bleeding. One word further in regard to diagnostic curettage as a weapon in diagnosis: we believe that this procedure should be done during a bleeding phase. The reasons for this are that functional bleeding is a self-limiting disease in many instances and endometrial curettage may be unnecessary if the bleeding has stopped. Secondly, one is able to determine the type of endometrium from which the bleeding originates, and lastly the curettage is not infrequently therapeutic as well as diagnostic since it will stop the bleeding in most cases. In some patients the prolonged or irregular bleeding is controlled from six months to a year to indefinitely by simple endometrial curettage.

To summarize diagnosis, functional bleeding cannot be labeled as such without the aid of endometrial curettage and pelvic examination under anesthesia. In one case we made an office diagnosis of functional bleeding. By following the rule of always curetting before final diagnosis or treatment, we found the diagnosis to be endometrial carcinoma. The symptoms and signs in this 35-year-old woman were not different from functional endometrial bleeding.

One might ask, why not an office endometrial biopsy instead of curettage under anesthesia? We prefer the latter since the pelvic examination under anesthesia often proves informative, and the thorough curettage often proves therapeutic. Blood dyscrasias and anemia must be thought about and ruled out in the differential diagnosis.

TREATMENT

Much of the treatment is empirical, and none is completely satisfactory. As already mentioned, general constitutional physical factors as well as mental factors may enter into the problem. We recognize also that this condition is subject to spontaneous correction. It is no source of amazement that treatments recommended include many of the vitamins, all the hormones ,combinations, and other even more unspecific remedies such as snake venom.

We divide our functional bleeding cases into age groups for treatment. From age 12 to around 18, one can gamble usually, and not do a diagnostic curettage. At this age one is unlikely to be over-looking a pregnancy or tumor. In those with severe bleeding: bed rest, treatment of the anemia, transfusions, and ergotrate all have a place. For hemostasis we use 10 mg. of diethylstilbesterol daily. In two or three days the bleeding will stop. The diethylstilbesterol is gradually withdrawn, giving 5 mgm., then 2 mgm., then 1 mgm., and then none. The adolescent girls are followed with no specific therapy. They are given iron and liver to maintain normal hemoglobin and red blood cell levels. Should bleeding recur, large doses of estrogen may be again applied without harm. This type of bleeding is anovulatory and therefore the endometrium is deprived of progesterone. Continued estrogen stimulation may result in endometrial hyperplasia. In time Nature will intercede with normal ovarian function and correct the condition. It is exceedingly rare that adolescent bleeding cannot be stopped by hormonal methods. Hyster-

ectomy should never be necessary. Infrequently, and after some thought, it may be necessary to do a curettage upon an adolescent functional bleeder for purposes of hemostasis.

There are no responsible groups who recommend radio-therapeutic methods for the control of adolescent functional bleeding. Several years ago, in desperation, gynecologists used to treat recalcitrant cases with small doses of intrauterine radium. Another variation of this theme was externally applied irradiation through the anterior abdominal wall. Experience, usually in the form of disaster, has influenced clinicians to disregards such methods. Dosages calibrated to be large enough to control the bleeding, and small enough to preserve satisfactory ovarian function were found impossible to deliver with any consistency. Sub-sterilizing doses were not infrequently followed by permanent amenorrhea. Cases are being collected in which a small dose of intra-cavitary radium given fifteen to twenty years ago has been followed by endometrial sarcoma.

Irradiation of long bones in adolescent bleeding cases and irradiation of the pituitary gland have been tried. None of these radio-therapeutic methods are advised today.

The next age group under consideration in a discussion such as this is that group which represents the childbearing age. It is in this group that one has to be particularly careful in diagnosing functional bleeding. From age 17 to 18 and upwards, we insist that curettage and pelvic examination under anesthesia be a pre-requisit to diagnosis or therapy. By so doing we find that approximately one-third of our cases diagnosed in the office or in the out patient clinic as functional bleeding cases no longer remain in that class but are actually organic uterine bleeders, due to such conditions as pregnancy, endometritis, pelvic inflammation, ovarian cysts, or a submucous fibroid.

In the management of our functional bleeding patients we have discovered that of the remaining two-thirds that came to us originally as functional uterine bleeders, one-half of these respond to curettage for from six months to a year or more. In other words, we have found that of all patients that we diagnosed as functional uterine bleeding during the childbearing age, one-third were falsely diagnosed, one-third were controlled by curettage, and one-third were left for hormone therapy.

Thyroid hormone therapy has been a disappointment to us in the management of functional bleeding. We have gotten basal rates upon eighty consecutive cases with this complaint. The basal metabolic rate was within normal limits in each instance. We do not use thyroid extract in the treatment of these cases. In our opinion, the enthusiasm for the drug is unwarranted. Spontaneous remissions are not uncommon. Several of our cases have spontaneously adjusted themselves while awaiting hospital admission for curettage.

Estrogen, progesterone, and testosterone are effective in the management of menstrual irregularities. Each preparation has its enthusiastic supporters. As previously stated, we only use hormones in treatment following positive diagnosis established by curettage and pelvic examination under anesthesia, except in the very young.

Our favorite method for the management of functional bleeding that persists after curettage is Hamblen's cyclic estrogen and progesterone treatment.[3] The treatment is started immediately after bleeding ceases. The bleeding can be halted either by large doses of estrogen, 5 to 6 mg. of diethylstilbesterol daily, or by 7.5 mg. of estrone sulfate daily. Each is given orally. Either after curettage or stasis of the bleeding from estrogens, the patient is given 1.25 mg. of estrone sulfate, three times daily for 20 days. The last ten days of this twenty are supplemented with 10 mg. of oral pranone, three times each day. This regime is repeated for three or four months. The patient is given a rest from therapy to see if her own regulatory mechanisms will take over the job of regular menstruation. In this manner, the pituitary gland and ovaries are put at rest and the endometrium is placed under biphasic control for at least three or four months. Many patients stay regulated under this method.

Another method of management that has been recommended by Smith[4] and with which we have had approximately seventy-five per cent success in the treatment of functional bleeding is the estradiol benzoate and progesterone method. Ten mg. of progesterone and 1 mg. of estradiol benzoate is given the 21st day of the cycle, the first day being the first day of flow. From the twenty-second through the twenty-fifth day of the cycle, 10 mg. of intramuscular progesterone is continued. This treatment is continued for

two to three months. In those patients complaining of too frequent bleeding the above regime is started eight days prior to the expected date of flow. In this manner the span between the menstrual bleeding can be widened.

Twenty-five mg. of intramuscular testosterone propionate three times weekly for two weeks, will stop excessive or prolonged vaginal bleeding.[5] Androgen therapy produces endometrial atrophy and halts the bleeding in that manner. No more than 250 mg. of androgen should be given each month. More than this amount may lead to masculinization.

Functional bleeding that occurs in the women of the childbearing age can be controlled by diagnostic and therapeutic curettage, except for about one-third of cases. These need hormone therapy for a few months. One has to be certain that the bleeding is not due to pelvic inflammatory disease. Such a cause for bleeding never is helped by any of the hormonal therapeutic methods outlined here.

In the group of women thirty-eight and over, the so-called pre-menopausal group, we rarely resort to hormone management. Women of this age group deserve a diagnostic and therapeutic curettage even more than those of the childbearing age. Endometrial carcinoma is exceedingly rare under forty. After forty it is always a potential threat. If the first curettage does not bring the functional bleeding complaint under control readily we are likely to try another curettage. If one or two curettages do not relieve the irregular bleeding our next step is usually along the lines of a permanent cure. Here we have three treatments to offer: intracavity radium, external irradiation, or hysterectomy. We prefer abdominal or vaginal hysterectomy in most cases because the ovaries can be preserved. With irradiation one stops the bleeding by permanently blighting the ovaries. If menopausal symptoms appear, the therapeutic relief of such symptoms may re-establish irregular, prolonged or profuse bleeding. Some will take issue with us on the recommendation of hysterectomy in pre-menopausal women who continue to bleed following two or three curettements. Some say that such irregularities can be controlled with the various hormones. Our experience has made us unenthusiastic about hormone control methods in these older women. The number of failures has been too high from the standpoint of patient or physician satisfaction. In the obese woman, the hypertensive patient, or in the patient with systemic disease, hysterectomy seems too great a risk at times In these we may recommend intra-uterine radium. Under anesthesia a curettage is done and 80 mg. of radium screened with the equivalent of 1.5 mm. of platinum is placed in the uterine cavity. The laboratory is asked to render us a 24 hour microscopic report upon the tissue removed. If the diagnosis is that of a benign endometrium the radium is removed at the end of 24 hours. If the pathologist reports endometrial malignancy the radium remains for 4000 mg. hours. Endometrial carcinoma cases are then followed by total hysterectomy and bilateral salpingo-oophorectomy. External irradiation directed toward the ovaries is as effective as radium but it should always be preceded by diagnostic curettage.

SUMMARY

This discussion has outlined our approach to the management of functional or endocrine uterine bleeding. Our experience has taught us that the diagnosis is many times inaccurate if not made after diagnostic curettage and pelvic examination under anesthesia. We have learned also that simple curettage is an exceedingly effective therapeutic instrument. Often the patient is relieved of complaints. The length of the cure varies from several months to indefinitely. Perhaps one-third of functional bleeding patients need to have hormone therapy, but only after curettage, except for the very young. Hormone therapy in the pre-menopausal group is likely to be disappointing. If the curettage has failed to bring about a satisfactory result after two or three trials, we are likely to recommend a permanent procedure such as hysterectomy or irradiation in certain chosen patients.

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MENIERE'S SYNDROME; DISTURBANCE OF VESTIBULAR APPARATUS — A Preliminary Report

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THE term "Meniere's Syndrome" has caused much controversy because in the original description it was believed to be due to a hemorrhage into the labyrinth. This idea has been abandoned by most recent writers.[1]

Since the pathological basis is unknown, the syndrome is classified by its symptom complex. Meniere's syndrome is divided into two phases: the acute phase, in which there is a sudden onset of severe vertigo which may or may not be associated with tinnitus and deafness; and the subacute or chronic phase in which tinnitus and deafness of a mild form are more or less constantly present with dizziness and headache occurring in milder forms at frequent intervals.

Atkinson[2] expresses the belief that Meniere's syndrome is primarily dependent on either increased capillary permeability or vasospasm. Poos[3] in a discussion of vertigo mentions allergy and excessive histamine formation as common causes. Lindsay[4] expresses doubt as to the allergic basis of Meniere's syndrome. He believes the syndrome is a symptom complex characteristic of several separate diseases of the inner ear.

In the acute phase Day[5] recommends surgical destruction of the labyrinth in Meniere's disease resistant to conservative measures. He reports relief of symptoms by this method but warns that the operation usually destroys the hearing on the involved side.

Nelson-Jones[6] points out that at times the attacks of vertigo may be accompanied with general disturbances of the vegetative nervous system, and that a primary gastro-intestinal condition may be simulated. They recommend surgery only after conservative treatment has failed.

SYMPTOMS AND DIAGNOSIS

Vertigo, according to Brain,[7] is "the consciousness of disordered orientation of the body in space." This is the most disturbing symptom of Meniere's syndrome especially in the acute phase where the onset is sudden and may occur any time, even while asleep. The vertigo may last for only a few minutes or persist in a subacute or milder form for days or even weeks. If the symptom complex can be reproduced by the caloric test, it is very suggestive of labyrinthine irritation. However, this is not always true. In a series of cases reported by Crowe[8] 35% showed a normal response to the caloric test, 19% a sub-normal response and 29% failed to react on the affected side. When the labyrinth fails to react, organic disease, such as 8th nerve tumor, should be ruled out before a diagnosis of Meniere's disease is made. Acute and chronic middle ear suppuration may also cause dizziness.

Nystagmus may or may not be present. It is usually noted in the acute phase but its presence in the chronic state is quite variable.

Tinnitus is usually present and greatest on the affected side. It may be limited completely to the affected side.

Deafness, particularly in the acute phase, may be complete on the affected side. In the chronic phase it is limited to the higher tones and, if not relieved, will progress.

Headache is a common finding in the chronic phase. It is usually unilateral. Occipital headache with radiation down back of neck is noted at times .

These symptoms are suggestive of Meniere's syndrome but the diagnosis should be made only after a complete physical examination has rules out any organic process. This is true because knowledge of the pathological process of the syndrome is so inadequate.

TREATMENT

Since the pathology of the process is so indefinite, the treatment varies according to the theories offered to explain the syndrome. In the acute phase surgical destruction of the labyrinth on the affected side is recommended by many authors. In the subacute or chronic phase the conservative medical approach is the treatment of choice. The medical approach varies greatly because there is still no form of medical treatment which has any great claim over the others.

All factors which tend to promote general well-being and good health are of prime importance.

Specific treatments which are current at present are the sodium-free diet of Furstenberg, Lashmet and Lathrop[9]; the histamine treatment of Sheldon and Horton[10]; and the potassium chloride treatment of Talbott and Brown.[11]

Other treatments which have been tried are: benzyl cinnamate by Seal[12]; and vitamin therapy by Atkinson.[13, 14]

It is the author's belief that the syndrome results from a combination of several factors which effect the labyrinth and treatment is designed to overcome the causative factors. These factors are histamine sensitivity, vitamin deficiency, and capillary permeability. They may occur separately or in any combination. A complete examination is done first to rule out any organic condition. This is very important and several rechecks as well as the aid of an internist are essential to eliminate organic disease. At this point the histamine skin test is performed which divides or classifies the causative factors. There are three reactions noted which are of importance.* First, the histamine positive or vasodilator group which respond to histamine desensitization therapy; second, the histamine negative or vasoconstrictor group which respond to vitamin therapy (nicotinic acid); and third, the intermediate group with a large negative or small positive reaction which respond to minimal doses of histamine given orally along with Hesperidin Chalcone Sodium[15] to overcome capillary permeability.

The histamine positive group respond to histamine desensitization. This is accomplished either by the intravenous or subcutaneous injection methods. The intravenous method is more rapid but much more difficult to control because it may aggravate the symptoms if given too rapidly. The commercial solution of 1.1 mgm. of histamine phosphate in 500 c.c. of saline** is used. This solution is given at the rate of 20 drops per minute and stopped immediately if the symptoms are aggravated. Sometimes one bottle of 500 c.c. is sufficient to alleviate an attack; however, it can be repeated on consecutive days until three bottles are taken. It has not been necessary to give more than this amount but some authors have recommended more.

The subcutaneous injection method of desensitization is more practical especially where office space is limited. This method has been just as successful in relieving the symptoms but it is not as rapid. Injections are started yith 0.03 c.c. of 0.275 mgm. of histamine diphosphate per c.c. They are given every other day or twice a week depending on circumstances and increased by 0.02 each time. This increase is not made if the patient experienced any untoward reaction from the previous injection. The increase in amount is stopped and maintained at the level where the patient has experienced relief. If the amount given is increased beyond this level, it may cause a recurrence of symptoms. To date 0.5 c.c. of the histamine solution is the highest level required. Most patients experience relief of symptoms between 0.3 c.c. and 0.4 c.c. After this maximum level is reached, the intervals between the injections are lengthened gradually. They are given once a week, then every ten days and stopped if the patient remains comfortable on injections once every two weeks. Many patients experience sufficient relief so that they do not complete this entire treatment plan.

The histamine negative group respond to vitamin therapy. This therapy is limited to the B complex group of vitamins. The patient is given 100 mg. of nicotinic acid (sodium nicotinate 140 mgm. in 10 c.c.) intravenously once weekly and an intramuscular injection of vitamin B complex once weekly. These injections are separated by three or four days. At home the patient takes orally nicotinic acid 50 mg. t.i.d. When the symptoms are completely relieved, the patient is maintained on an oral vitamin B complex at home. The vasodilator effect of the nicotinic acid is the important factor. Nicotinamide, which is more commonly used in other fields, does not have the vasodilator effect of nicotinic acid and does not give the relief desired.

The intermediate group respond to oral doses of histamine and to Hesperidin Chalcone Sodium. It is a known fact that histamine is destroyed by

*The histamine skin test:

An intradermal injection of 0.02 c.c. of histamine acid phosphate (2.75 mgm. in 5 c.c.) is placed on the ventral surface of the forearm. The reaction is read in 10 to 15 minutes. There are three types of reaction to be noted. First, the negative reaction which shows no area of redness or erythema around the area of injection. Second, the slightly positive or large negative reaction in which there is a fairly large area of erythema around the site of injection but no pseudopodia of erythema noted. Third, the positive reaction in which there is a large area of erythema with pseudopodia of erythema present.

Tangential light is more apt to bring out the appearance of pseudopodia as compared to direct light.

**A commercial solution of 1.1 mgm. of histamine phosphate in potassium chloride is also available but this solution caused severe pain in the extremities, particularly that extremity used to give the intravenous solution, so its use was discontinued.

the stomach juices. Therefore, this oral histamine must gain entrance into the body through the lining of the mouth. It is given as sublingual drops. The solution used is histamine diphosphate 2.75 mgm. per c.c. The directions are two drops under the tongue twice daily. After the drops are placed under the tongue, the patient closes the mouth and avoids swallowing or talking for four to five minutes. This gives the medicine a chance to be absorbed through the lining of the mouth. Besides this, the patient is given Hesperidin Chalcone Sodium[15] 50 mg. orally three times daily. Hesperidin Chalcone Sodium is a vitamin P derivative which, according to the literature, will control capillary permeability. The Rumple-Leed test has been of little value is determining the need for this medication.

Since this study of the evaluation of Meniere's disease was started, a new drug has appeared on the market. The name of this drug is "Dramamine."[16] The author has used it in a few cases but has not given it sufficient trial to determine its effectiveness.

SUMMARY

Meniere's syndrome is divided into two phases, the acute phase and the chronic phase. The etiology and pathology of the process are obscure. The chief symptoms are vertigo, nystagmus, tinnitus, deafness and headache. The treatment may be surgical or medical. The conservative medical approach should always be tried first and surgery as a last resort because this requires destruction of the labyrinth on the affected side. Many approaches to treatment have been recommended. They are: the sodium-free diet of Furstenberg, Lashmet and Lathrop; the histamine treatment of Sheldon and Horton; the potassium chloride treatment of Talbott and Brown, and the vitamin treatment of Atkinson.

The author believes that three different factors are responsible for the syndrome. They are vasoconstriction, vasodilation and capillary permeability. These three factors can be separated by interpretation of the histamine skin test. The vasodilator or histamine positive group respond to desensitization with histamine. The vasoconstrictor or histamine negative group respond to nicotinic acid and vitamin B complex. The intermediate or capillary permeability group respond to minimal oral doses of histamine and Hesperidin Chalcone Sodium.[15]

The surgical treatment, destruction of the labyrinth, suggested by Day,[5] is not done by the author. Reference to the literature for this approach is suggested.

CONCLUSIONS

A preliminary report on the causative factors of Meniere's syndrome, their differentiation and a plan of treatment.

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Editorials

To Kind Hearts and Gentle People

The preparation of a medical journal should be a give-and-take venture between the editors and the medical public. It is, but only after a fashion—the editors usually "give" and the subscribers usually "take."

It really should be more mutual. The usual state journal is published chiefly for the edification, needs, and glory of the physicians resident in the area. A considerable amount of work is required to get each issue in shape—and more than a dozen times as much to complete every twelve issues. The editors do not get rich in doing so, and they should be entitled to some help in various ways from their constituents.

One may paraphrase a lyric from Gilbert & Sullivan—"Never! What—Never? Well, hardly ever!"

It should be possible to easily obtain *papers* of different sorts from the nearly six hundred members of the state association, or the other registrants elsewhere. The process, however, is much more like going to the dentist, though not as urgent. Physicians send in papers if they have them available; they rarely respond to heckling or pleading for new compositions.

It should be possible, even more easily, to obtain *case-reports* for "case-analysis," but the man who runs that department tells us that he has had *two* cases submitted in three years (by close friends), but that the request at the beginning of each section, personal appeals to likely prospects by letter on several occasions, and other approaches just short of blackmail have all been unproductive. The cases have had to be dug out of hospital and office and personal files.

It might seem possible that contributions would be sent to that modern, interesting, and usually accurate *column* "Rx, Dx, and DRS." Dr. Osler, however, has considered making mistakes on purpose, since the best (few) comments have been either to augment a published item, or to modify one which seemed incorrect to a reader. All that vast silence, in spite of the fact that it is known that the column *is* read.

Should subscribers use the *editorial columns* to expound, complain, propose, or praise? Apparently not, since very few have mistaken us for "The Times," nor felt an urge to write a letter.

Finally, it would be logical to expect that *news items* about meetings, trips, medical affairs, elections of officers, etcetera, would arrive in a constant shower. No need to compose them; no long hours required. No shower though, even an inconstant one. The modesty and reserve of the Arizona physician is amazing, and we just don't have enough reporters to make up for it.

This summary, almost entirely negative in result, might appear to be a crushing blow to editors. Not so. The situation is a recurring source of mild wonderment, but not a terrible surprise. Editors, in addition to being burners of the midnight oil, are moderately tough and perennially (or permonthly) hopeful.

And say, do you know what? I believe that this column will start people thinking, and in a few weeks we'll have some swell contributions!

Dr. Robert E. Hastings will assume the duties of President of the Arizona Medical Association during the Annual Session April 30-May 3, 1950. Born in Traverse City, Michigan on July 6, 1902, he received his elementary education in Traverse City and Ann Arbor. He was graduated from the University of Michigan Medical School in 1927. After serving an interneship and residency in the University of Michigan Hospital, he opened an office at Elk Rapids, Michigan in 1929 where

he engaged in general practice for five years. From 1934-1936 as a resident in Orthopedics at the University of Michigan Hospital, he was also instructor in Orthopedic Surgery. In 1936, he

ROBERT E. HASTINGS, M. D.

moved with his family to Tucson, where he has been engaged in the practice of Orthopedic Surgery ever since, except for the war years.

In 1928, he was married to Miss Bertha Anderson. They have one child, a son, Robert E., Jr., who is a premedical student at his father's alma mater. The family home is at 2521 East Helen Street, Tucson, and the Doctor's offices are at 1811 East Speedway.

Dr. Hastings is certified by the American Board of Orthopedic Surgery; member of the American Academy of Orthopedics, Fellow of the American College of Surgeons, member of the Western Orthopedic Society and of the Southwestern Surgical Society. He is also State Consultant in Orthopedics for the U. S. Veteran's Administration.

During World War II, he entered the military service in the U. S. Army Medical Corps in 1942 and was attached to the air force. He served as Chief of Orthopedics, Regional Hospital, Santa Ana, California, and later as Chief of Surgical Service and Orthopedics, Regional Hospital, Maxwell Field, Alabama. In December 1945, he was separated from the Armed Services in the grade of Lt. Colonel.

Dr. Hastings takes over the office of President with considerable experience in organized medicine. He has served as President of Grand Traverse County (Michigan) Medical Society, Pima County (Arizona) Medical Society, and two years as Vice-President of the Arizona Medical Association and member of the Council. His hobbies are golf and fly-fishing, in each of which he excels.

PHOENIX CLINICAL CLUB

Massachusetts General Hospital
Case Report No. 30061
December 19, 1949

A twenty-three-year-old woman was admitted because of swelling in the lower back of three months' duration.

The patient had been in excellent health until about eight months before entry, when she developed pain in the lower midback This was severe only when she tried to bend, and it did not radiate. It lasted for about five months, improving slowly but steadily. Three months before admission she noted the gradual onset of swelling in the lower midback. The swelling increased in size, but there was no pain. She had no weakness in the back or legs or any other symptoms.

One sister had arrested tuberculosis.

Physical examination showed a well-developed, well-nourished girl in no distress. The heart was normal. Slight "wheezes" were heard in the right lung. The abdomen was normal. A cystic, fluctuant, soft mass measuring about 15 cm. in diameter was found in the midlumbar region. No neurologic abnormalities were noted.

The blood pressure was 100 systolic, 80 diastolic. The temperature was 98.6°F., the pulse 90, and the respiration 20.

Examination of the blood showed a white-cell count of 11,300. The hemoglobin was 12.8 gm. per cent. The urine was negative. A blood Hinton test was negative, and a blood Wassermann doubtful. A lumbar puncture showed initial pressure of 120 mm. of water, with normal dynamics. Forty centimeters of clear fluid was withdrawn, which contained 3 white cells and no red cells per cubic millimeter; the total protein was 24 mg. per 100 c.c., and the gold-sol curve 0000000000. A Wassermann test was negative. Pressure on the tumor gave no rise in manometer.

Roentgenograms of the spine showed destructive changes in the dorsal portion of the spinous process of the fourth lumbar vertebra. This spinous process lay within and appeared to extend into the area of soft-tissue swelling. There was no evidence of involvement of the neural arch, aside from the spinous process. The fifth

lumbar vertebra was intact. An air myelogram showed the air column poorly outlined in the lateral but clearly visible in the anteroposterior view. It was visualized only below the level of the fourth lumbar vertebra. The nerve sheaths were not filled. The cul-de-sac extended to the level of the second sacral segment and was normal in appearance. There was failure of closure of the spinal canal below the third sacral segment. No connection could be seen between the spinal canal and the mass posterior to the sacrum on the right side.

On the tenth hospital day an operation was performed.

DISCUSSION

Dr. Clarence B. Warrenburg:

The salient features in this case as I see it are as follows:

1. The young woman is in good health—she feels fine and Px is negative except for the 15 cm. fluctuant painless mass in the midlumbar region.

2. There has probably been an intimate family exposure to tuberculosis.

3. The lesion is evidently extraspinal.

4. The x-ray reveals a destructive lesion on the tip end of the spinous process of the 4th lumbar vertebra and this seems to extend into the fluctuant mass.

What condition, therefore, can produce such a picture as this?

1. Neoplasms are not usually fluctuant, and they erode bone instead of producing a destructive lesion—unless they arise in bone. I believe this rules out sarcoma, neurofibroma, myomatous tumors, etc.

2. Syphilis of the bone is ruled out by negative serology.

3. Inflammatory processes:—

   a. Osteomyelitis is cast aside because the onset was not an acute one.

   b. Periostitis—no history of injury.

4. Tuberculosis—why don't they report the chest x-ray? There were wheezes in the right lung. You know they took an x-ray of the chest.

This could be a cold abscess of an early tuberculosis of the spine. The bony lesion is very atypical in that the bodies of the vertebrae are most commonly involved. I was able to find one article on tuberculosis of the spine from the Sea View Hospital in Staten Island in which they analyzed 177 cases of Pott's disease. In that article these statements were made:

"It is generally accepted that the posterior elements (neural arches) or so-called small parts of the vertebrae are seldom involved." These investigators found the neural arches were involved in 28 of the 177 cases studied. They further state that clinical evidence of such involvement sometimes exist preoperatively, as shown by the presence of swelling, abscess formation or sinus near the mid line. Rarely is it demonstrable by Roentgenogram. It is only when the disease process is well advanced that x-ray evidence of involvement of the neural arches can be ascertained definitely."

The protocol states that the neural arches are not involved but the dorsal surface of the spinous process was involved. This 23-year-old girl has had plenty of exposure to tuberculosis.

5. Actinomycosis or Blastomycosis or Coccidioidomycosis for that matter can and, at times, do involve the spine.

Tabb and Tucker in the American Journal Roentgenology in 1933 have this to say about Actinomycosis and Blastomycosis of the spine:

1. The spine is one of the rarest sites known to be affected by this disease.

2. Two or more vertebrae are usually involved.

3. It involves the bodies, pedicles, laminae without any predilection for the bodies which contrasts strongly with TB where the vertebrae bodies bear the brunt of the attack.

4. Large perivertebral abscesses form rather early and are a constant finding.

5. There is usually lung infection where the spine is involved.

6. Although these patients have localized vertebral destruction and large perispinal abscesses the pain is not severe. They walk with a normal gait and are active without any material discomfort; whereas in Pott's disease with abscess formation, the pain is usually severe and the patient welcomes any means of fixation of the spine.

The diagnosis of actinomycosis is made when the sputum or sinus tract drainage reveals the ray fungus. In the case today such information was not available—or it has been denied us.

My first diagnosis is Actinomycosis or Blastomycosis of the spine.

The second diagnosis is tuberculosis of the spine.

The operation was probably the removal of the abscess and adjacent structures en bloc.

Dr. Philip E. Rice:

In this case we are asked to discuss the differential diagnosis of a cystic mass 15 cm. in diameter in the mid-lumbar region in a 23-year-old woman. Her health had been excellent until eight months before, when she developed a lower mid-back pain, accentuated by bending, and without radiation, which lasted five months. As this pain subsided, a gradually increasing swelling was noted in the same area, and at the time of examination there was no pain and also no weakness in back or legs, or other symptoms.

A sister had arrested tuberculosis but no tuberculin test was noted on our patient nor was a chest x-ray recorded. Except for a few "wheezes" in the right lung, her physical examination was entirely normal aside from the mass. Her white count was given at 11,300 but no differential was recorded, which might have helped us in evaluating the possibility of an echinococcus cyst or tuberculosis. The hemoglobin was 12.8 Gm.% and only one normal temperature reading was given, so I assume she ran no fever. I discount the finding of a doubtful blood Wassermann because the Hinton was negative. The spinal fluid was entirely normal and the cyst apparently did not communicate with the cerebro-spinal canal since pressure on the mass caused no rise in manometric pressure.

Now in the x-rays we begin to find something. The spinous process of the 4th lumbar vertebra lies within the soft tissue swelling and shows a destructive change in its dorsal portion. The neural arch seems to be intact. An air myelogram shows a poorly outlined air column in the lateral views but although clearly visible in the A. P. was visualized only below the level of the 4th lumbar vertebra. Nerve sheaths were not filled. The cul-de-sac extended to the 2nd sacral segment and was normal. There was failure of closure of the spinal canal below the 3rd sacral segment.

Now they say "no connection could be seen between the spinal canal and the mass posterior to the sacrum on the right side." I assume they mean that no channel was noted connecting the sacral defect and the cyst above.

In discussion let us first consider the pain which lasted for about 5 months. By its character and lack of radiation it probably was not a nerve root pain but likely was caused by pressure and erosion of the spinous process and muscles and ligaments since it was only accentuated by bending. Does this indicate that the mass arose in the spinous process or that this structure was only in the way? If this were a spina bifida, meningocele or myelocele we should expect some defect in the neural arch. Yet the air which must have been injected into the spinal canal at a level below the mass, was checked at its upper end at the level of the mass. What would have shown if the air had been injected above the mass? Apparently spinal fluid passed this point for we are told that the dynamics were normal, which I assume included a Queckenstedt test.

Because of the lack of communication with the spinal canal, the lack of a break in the neural arch, and the evidence of destructive change in the spinous process, I reluctantly pass by meningocele as the diagnosis. I am sure that this is what the clinicians originally thought she had.

Now what disease might originate in a spinous process and after causing destructive changes therein, enlarge to include the surrounding soft tissues and after several months become a cystic mass of considerable size? I can find no report of a bone cyst of this type and size, the x-ray appearance is not described like cysts would be. Also a solitary myeloma would hardly be expected to become large and cystic like this.

Dermoid or epidermoid cysts which are so common lower down in the back, would not be expected to arise in and destroy a vertebral spinous process. I am also passing by neoplastic diseases of the bone—although this may be a mistake.

Of the bone infections that may cause a fluctuant mass, tuberculosis is by far the commonest. (I have assumed already that it is not a pyogenic osteomyelitic abscess because of the absence of fever tenderness, etc.) However, bone tuberculosis usually begins in the disc and erodes into the vertebral body and more rarely begins in one of the posterior vertebral articulations. Although it is possible to have a solitary tuberculoma start in a spinous process and form a cold abscess, I think it is unlikely.

There are few other infections which might cause a cold abscess arising from a solitary site in a bone. Echinococcus cyst seems like a very good possibilitly, but we have no substantiating

evidence such as a history of association with sheep or residence in the Mediterranean area. Also we are denied knowledge of the eosinophil count. Another possibility is actinomycosis. Was this a farm girl who in her daily chores was in contact with cattle? The single location of the process and the length of time required for its development would fit a diagnosis of actinomycosis which was discovered before a draining sinus began.

Anyway I think we have here a "cold" type of osteomyelitic process which has destroyed a spinous process and formed a slowly growing abscess. As a first guess I will say actinomycosis, and as a second, tuberculosis, and as a third, echinococcus.

Dr. George McKhann:

My last case was too long and we were told too much to make it an easy one. This time we are given too little to make diagnosis easy. Much of what we are told is of negative value.

There was failure of closure of the spinal canal below the third sacral segment, a spina bifida occulta, but with no demonstrable connection with the mass which is described as posterior to the sacrum and on the right. Nor did pressure on the mass give a rise of monometer pressure, so there was no connection with the spinal canal. These two observations should exclude spina bifida, but not associated conditions.

First, one should try to decide whether the lesion originated in the soft tissue or in the bone. The first symptom was pain without any surface evidence, so I shall presume that the original involvement was osseous, because any soft tissue cyst, or tumor that caused bone erosion as it developed in that area surely would have been noticeable.

The osseous lesions that might involve a spinous process include traumatic, degenerative, inflammatory, neoplastic and parasitic. There is no history of trauma. She is young for degenerative lesions and one would not expect them to produce cystic swelling. The acute inflammatory lesions ,osteomyelitis, are discarded because of the eight months' course and lack of evidence of inflammation. Chronic inflammatory disease such as tuberculosis, fungous infections, and syphilis must be considered, as well as typhoid, brucellosis, yaws, leprosy, and staphylococcic infections. The negative Hinton and spinal fluid exclude syphilis. Of the fungus infections we have no information as to residence in the Southwest, nor of lesions in other parts of the body, nor of eosinophilia that might be suggestive of Coccidioidomycosis, Actinomycosis, or the other fungus infections. The lack of eosinophilia might also dispose of parasitic disease, especially ecchinococcosis as well as the fact that she is not reported as being from, nor even in, Greece or the Mediterranean countries. Tuberculosis is a possibility, but in an unusual location. To further support this diagnosis her sister had arrested tuberculosis, so she must have been subjected to such infection, and further, she had "wheezes in the right lung." No tuberculin test nor chest x-ray are reported. Failure to have made these seems negligent before operating on such a patient with even slight "wheezes in the right lung." Perhaps they were done and not reported to us. The lack of malaise and systemic effects is against tuberculosis, and other low grade, chronic osteomyelitides, such as Brodie's type abscess, Brucellosis, and typhoid spine lesions. There is no evidence of yaws, which may produce bone lesions with destruction, as well as typhoid. There is nothing in the history to suggest a previous typhoid infection, although typhoid lesions have been known to appear six years after the acute attack. Very low grade staphylococcus albus infections have been mistaken for cystic swellings. In fact there is no positive evidence to support any type of infection except tuberculosis.

Tuberculosis generally begins as a single focus in the spongy portion of the body of one of the vertebra and rarely affects the arches, lamina or processes primarily. In fact, Compere & Garrison state never. The proliferative inflammation does spread to and narrows the canal and leads to compression of the cord or roots, to meningitis and/or sometimes to cold abscess formation, which in the lumbar region may point posteriorly as well as follow the psoas muscle. Since it is a focal disease the first symptom is usually pain, localized, usually dull and boring, and aggravated by movement or jarring. Localized tenderness to pressure and a reflex rigidity of the spine may be present. With progress deformity and neurologic symptoms appear. The course is slowly progressive, without fever except in the presence of complications. Diagnosis is made from the symptoms, signs and x-ray, and is usually not difficult. Operation is usually avoided, although with a lesion in a

spinous process surgical treatment, excision, followed by treatment with Streptomycin, I am told, is permissible, provided streptomycin is given preceding operation. All operations may do harm, though.

The neoplastic diseases are too numerous for detailed discussion, since such might arise in either the soft tissues or the spinous process. All osteogenetic neoplasms can be discarded at once. Carcinomatous lesions are common in the spine but are always metastatic, and there is no suggestion of a primary. One author states that in spinal lesions with a doubtful diagnosis the entire skeleton should be x-rayed. From that, one might conclude that the surgeon was certain of his diagnosis, but I am most uncertain. Let us consider osteolytic neoplasms. There is no indication of myeloma, that is, no report of Bence-Jones protein. Giant cell tumors are frequent in the spine, most often in the neural arch, but they exhibit a bony capsule and leave a faint outline of the involved bone. Osteolytic sarcoma through hemorrhage might form a fluctuant mass, but rarely abscesses. Hodgkins Disease, Lymphosarcoma and leukemia may simulate metastatic Carcinoma, but our patient showed no systemic effects. A Chordoma may destroy bone and invade soft tissue, but that should be at the sacro-coccygeal region, not lumbo-sacral. They are usually diagnosed only at autopsy.

The angiomas deserve mention because of the use of the word cystic in describing our tumor. Hemangiomas are more often present in the spine than reported. They tend to give a characteristic x-ray picture showing vertical striations.

Cystic lymphangioma, or sacral hygroma, is the simplest tumor of a class often associated with spina bifida. It arises from extensive cystic dilatation of the spinal subarachnoid spaces. It may, or may not, be connected to the canal. In the latter case it appears as an isolated lymphangioma lying dorsal or ventral to the spine. Fibroma and lipoma, sometimes cystic, also teratomas and other very complex tumors also occur associated with spina bifida. These are usually seen in childhood, but may develop later in early adult life. Lymphangiomas do penetrate and destroy other soft tissue, but I am uncertain regarding their effect on bone, although Ewing states that angiomas may erode bone by extension from adjacent tissue. They are usually present at birth, and by slow growth may become quite large and bulky. They are also seen in the neck and axillary region.

Ewing's tumor, endothelial sarcoma, or solitary diffuse endothelioma, causes pain, not too severe, aggravated by motion, and relieved by the breaking through of the tumor to soft tissue. It is slow growing over months, and slow to metastize. It occurs in early adult life and youth. It may be cystic. There is bone destruction but no new bone formation, which distinguishes it from osteogenic sarcoma. There may be fever and leucocytosis. They respond promptly to radiation therapy, but tend to recur. Christopher reports these are not seen in the vertebra, which does not assist in diagnosis.

From my viewpoint the operation must have been exploratory, and for biopsy although the surgeon may have been certain of his diagnosis.

My Diagnosis

First: Chronic Granuloma, probably tuberculous, but very low grade staphylococcus albus or fungus infections can not be positively excluded because of lack of information.

Second: Osteolytic Neoplasm
Ewing Tumor

Third: Cystic Lymphangioma, or hygroma, associated with the spina bifida.

DIFFERENTIAL DIAGNOSIS

Dr. James B. Ayer: We are not told at what levels the lumbar puncture and the air myellogram were done.

Dr. Jost Michelsen: They were both done at the same time. The needle was put in the interspace between the second and the third lumbar vertebra.

Dr. Ayer: Apparently there were two destructive areas, one in the lower sacral region and one in the spinous process of the fourth lumbar vertebra. Perhaps we should see the x-ray films.

Dr. Laurence L. Robbins: These films were taken at the time of the air myelogram but with a different technic from that which would best demonstrate the soft-tissue mass. I think we can make it out in this area. It apparently extends from about the posterior margin of the spinous process of the second lumbar down to approximately the second spinous process of the fourth lumbar vertebra, which is apparently at about the center of the mass. I do not believe that this

is a congenital anomaly, but rather a destructive process. So far as the air myelogram is concerned, it is not a satisfactory examination. I do not see any evidence of an inflamamtory process encroaching on the spinal canal. There is evidence of congenital anomalies. The sacrel hiatus is larger than usual, and there is incomplete fusion of the laminas of the first sacral segment, as well as an anomaly in the development of the articular facets of the third lumbar vertebra; but these things are of no practical importance.

Dr. Ayer: In the transcription it says that the air column stopped below the fourth lumbar vertebra. Is that your interpretation?

Dr. Robbins: As I said before, the air myelogram was unsatisfactory; but I think that there was air all through the lumbar canal. The only way one could be sure would be to stereoscope these films in the anteroposterior view.

Dr. Ayer: Then the dogmatic statement "It was visualized only below the level of the fourth lumbar vertebra" is not borne out.

Dr. Robbins: That is someone's opinion who had the opportunity to stereoscope the films. I should think there was air going up to the first lumbar vertebra.

Dr. Ayer: A good deal depends on this point, and I should like to say that the experience of some of us with air myelograms has not been entirely satisfactory. I prefer lipiodol. On the other hand, the members of a good many other clinics believe that they can outline a disk, which is something smaller than what we have here. So there is a difference of opinion in the interpretation of air myelograms.

We are told that the physical and neurologic examinations were negative, except for a lump the size of a grapefruit in the midlumbar region. Therefore, discussion must center primarily on the mass. It was said to be cystic and fluctuant, and there was no pain connected with it, except when she bent her back. It enlarged rapidly, although we need not assume that its growth was limited to three months—perhaps eight months is a more reasonable estimate. As no note is made, we may perhaps assume that the mass was neither tender, discolored nor warm to touch. Nor are we told whether it was attached to the skin or deep structures.

From the evidence, I think we can safely say that we are concerned with a rapidly growing mass situated slightly to the right of the midline in the low lumbar region, which contained fluid but was non-inflammatory, and was not accompanied by gross destruction of the vertebras. Therefore, we can eliminate both pyogenic and tuberculous abscess, and also cancer originating in a vertebra. Tumors such as sarcoma and neurofibroma are firm and resilient, not primarily cystic, and may also be eliminated. By far the commonest fluctuant mass in this region is the meningocele, and the description given suggests this, although I miss the presence of the characteristic dimpling of skin and lanugo hair so characteristically seen. Nor is it likely that a meningocele, and even more likely a meningomyelocele, would be present with no disturbance of nerve function, particularly weakness and deformity of feet and bladden incontinence. Nor was there the characteristic lumber defect in the spine. Nor was there fluid in this mass that connected with the subarachnoid space. I am forced to consider the embryonal tumors that occur in this region. Chordoma, which I believe is always firm and gives a characteristic x-ray picture of wide, clear-cut destruction of the sacrum seems unlikely. But dermoid cyst and perhaps lipoma seem to answer the characteristics given. Both are associated with imperfections in the spine.

Was the spinal canal invaded? From the original interpretation of the air myelogram we are led to believe a block existed at the level of the fourth lumbar vertebra, but review of the films by Dr. Robbins fails to confirm this interpretation. Certainly there was no clinical evidence of involvement of the cauda equina, and yet we have often seen the lumbosacral canal filled with tumor — especially lipoma — without clinical evidence of its presence.

I therefore believe that the diagnosis that best fits this condition is a dermoid cyst, probably but not necessarily with attachment to the meninges through the imperfect spine; lipoma is my second choice.

Dr. Maurice Fremont-Smith: May I ask whether cold abscess starting in the spine might not make this picture? You mentioned it, but you then hastily discarded it.

Dr. Ayer: I threw it out rapidly and did not give all the reasons. I think it is fair to assume that the mass had been there for eight months and, if tuberculous, should have shown more spinal destruction than it did. Does not Pott's

disease start from the body rather than from the spinous process? Nor do I remember seeing it in the lumbosacral region. There was no fever. A sister had tuberculosis, but not the patient. Perhaps I threw out tuberculosis too nonchalantly but I do not believe that it is likely.

Dr. Robbins: Is destruction of the spinous process frequent in lipoma or dermoid?

Dr. Ayer: Not in lipoma. In dermoid cysts, however, I believe that there are rests in the spinous processes as well as in the lateral masses. That is a point in embryology of which I am not sure.

Dr. Robbins: Yes, I think there can be; but the thing that is impressive here is that it appears to have been a destructive process and not an erosive one.

Dr. Ayer: That is the weak point in the argument.

Dr. Robbins: I should expect to see erosion of the spinous process.

Dr. Ayer: I rather wanted to have it a developmental defect. Perhaps it is unreasonable to say that I still wonder if it could have been originally a developmental defect because of the other anomalies that you have demonstrated. If I could have that leeway it satisfies me. Certainly an osteomyelitis starting there would not give this picture.

Dr. Robbins: It could give that appearance in the spinous process.

Dr. Ayer: Yes, but hardly the rest of the picture, with the normal temperature and so forth.

Dr. Benjamin Castleman: Dr. Kubik saw this patient before operation.

Dr. Charles S. Kubik: I do not remember the case well except that I missed the diagnosis. Perhaps Dr. Michelsen remembers it.

Dr. Michelsen: Several points were not brought out in the summary that perhaps would have been of some value to Dr. Ayer. First of all, the size of the tumor increased on straining, sneezing and coughing, which made it fairly evident that the tumor contained fluid; but it did not transilluminate. There was also some tenderness to palpation.

It was decided to do an air myelogram not so much because we were hunting for an obstruction or a tumor in the spinal canal, but because we wanted to find out whether the mass was connected with the subarachnoid space. When this decision was made the destruction of the spinous process of the fourth lumbar vertebra had not been reported. The first x-ray films were read as negative.

On biopsy of the tumor a large amount of greenish pus was obtained and a small piece of bone was found at the bottom of the abscess.

CLINICAL DIAGNOSIS (preoperative)

Tumor of lower back (? hemangioma).

DR. AYER'S DIAGNOSIS

Dermoid cyst?

Lipoma?

ANATOMICAL DIAGNOSIS

Tuberculosis of spinous process of fourth lumbar vertebra.

PATHOLOGICAL DISCUSSION

Dr. Castleman: The material we received showed caseous tuberculosis.

Dr. Michelsen: After the diagnosis of a cold abscess was established, Dr. George W. Van Gorder was called in consultation. He stated that he had seen a similar lesion in that location, but that the condition was extremely rare. A detailed clinical checkup revealed that the patient had incipient tuberculosis of the lungs, and she was discharged to a tuberculosis sanatorium.

Dr. Ayer: The "wheezes" meant something after all.

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By Guillermo Osler, M. D.

The presentation in ARIZONA MEDICINE of an article by Dr. H. Corwin Hinshaw is a fortunate occurrence. This journal is not only glad to have a topical report on streptomycin, published in a couple of months since it was written, but honored to have one by Dr. Hinshaw. . . The author was on the staff of the Mayo Clinic until 1939, when he located in San Francisco. He and his colleagues were the first to test a sulfone drug in tuberculosis, the first to test streptomycin in animals and man, and the first to correlate streptomycin and para-aminosalicylic acid. . . Dr. Hinshaw, with Riggins, is author of the first text on the streptomycin drugs, and a recent president of the American Trudeau Society.

TB No. 1—The newly imported anti-tuberculosis drug TB-1 (or Schenleys "Tibione") has been started with unusual caution, due to wise warnings from Drs. Hinshaw and McDermott who were sent to inspect its German usage. . . . A most heartening sign of medical cooperation is the quick summary by Owen of Milwaukee of the results of early effects in 20 Vets. Admin. hospitals. Tb-1 had been used only 28 to 50 days, yet because of its potential toxicity and the close observation and quick reporting, a rapid warning was possible. . . . It appears that liver changes do occur, a case of agranulocytosis had appeared, and other symptoms can be expected.

TB No. 2—Whatever the merits of a Baltimore therapy, said to be "an arsenic compound and sulfadiazine," the comments of the meeting's chairman stand out like an ash-heap in a city park. In two breaths he had these things to say—"It is really most amazing; the results are similar to penicillin against pneumonia, or liver extract against pernicious anemia," and "It must not be construed as a cure for tuberculosis until there is confirmation in the hands of good observers."

Sometimes even a hardened medical librarian must be jolted into a stare or giggle by titles of certain articles which turn up in the Army Medical Index. For instance—Douglas, in Southern Surgeon, "The Human Ovary; Am I My Brother's Keeper?"; Cross, in Proc. Royal Soc. Med., "Penicillin in the Therapy of Dead Teeth"; Perry, in Journ. Exper. Biol., "The Swimming of Whales, and a Discussion of Gray's Paradox"; Totten, in Anat. Rec., "Pneumatocyst of the Physophores"; and, finally, Hecht, in Genetics, "Tetraploid Ratios of Self-sterility Alleles."

There have been few more kindly, plain, thoughtful, and fortunate people than the late DR. GEORGE MINOT. He was a typical New Englander, who loved to say "Et" instead of "Ate" or "Eaten," as a foil for his Harvard education and professorship. . . . He dramatically was saved from diabetes in 1921 by insulin, and was never very rugged; he lived until 64, long after he had saved thousands by his help in the discovery of liver therapy for pernicious anemia. Dozens of valuable and even great research workers have come from his Thorndike Laboratory at the Boston City Hospital.

The special x-ray technic known as planigraphy, laminagraphy, or tomography is used in examination of the chest to identify rarefications such as cavities. The results vary not only with the technic (which amounts to slicing the lung into 1 to 2 cm. slices by x-ray) but with the reading (which often amounts to slicing bologin). The point which we make, after a play on words, is that the method can also be used to show or emphasize DENSITIES in the lungs. They often show up much clearer than by any other method.

All-American (Medical Ass'n.)—The tentative line-up for the coming season has been announced, with the team strengthened at all positions, it is said. Fishbein, who "graduated," will be succeeded at quarter-back (editor of J. A. M. A.) by Austin Smith, who takes over his duties after considerable experience at both right and left half-back (director of therapy and research, and secretary of the council on pharmacy and chemistry). Smith's position will be filled by Bob Stormont, a nifty runner and passer from Washington Junior College (medical director of the Federal food and drug adminstration). Walt Bauer, who has been on the Junior-Varsity (AMA bureau of health education) will take over as sub-quarter-back (editor of "Hygeia," now called "Today's Health"). Dick Plunkett, also of the JV's (queries and minor notes of the J.A.M.A.) has shown some shifty footwork and will get a chance at right half (managing editor of the nine A.M.A special journals). . . . A full schedule has been arranged, and the first game (A.M.A. Clinical Session at Washington) was a sell-out.

To anyone who has to use a mask, as well as glasses, the problems of steam and vision arise. At least two answers are available—a chemically-treated cloth called "Kleerize," and a brown glass-wax called "Anti-Steamer" and various other trade names. . . . They can also be used on laryngeal mirrors, shaving mirrors, windshields, etcetera.

The evolution of operations on the sympathetic nervous system for the treatment of hypertensive vascular disease has gone through several stages. An early, limited type was supplanted by Smithwick's thoracolumbar resection; Peet raised the level to a supradiaphragmatic operation on the thoracic group; others have gone even higher. The question has been raised as to the effect of a "complete" sympathectomy, provided it did not leave the patient a "homeostasic" cripple. . . . Ray and Console of New York have reported in the Annals of Surgery on 30 cases who were subjected to as extensive an operation as possible. The follow-ups were from 1 to 2 years. Only two patients died as a result of surgery, and one later. . . The conclusions were that the procedure does lower the blood pressure a bit more than the lesser operations; that homeostasis is not threatened, after a period of readjustment; that the extra value of the "total" excision is merited only in special circumstances, namely angina pectoris, tachycardia, and peripheral vasospastic states; and that there is persistent sympathetic activity in spite of the wide resection.

The metabolic fate of infused red blood cells has been detected by Levenson, Birkhill, Maloney, and Bell of the U. of Illinois. They report in the Annals of Surgery that, among other things, the red cell mass decreases at the rate of 0.8 per cent per day. The mass of the recipients cells declined at a slower rate, due to bone marrow depression.

The right hand of the Veteran's Administration and the left hand of the Armed Services do not seem to be very closely connected, at least through a central nervous system. . . . The latter authority closes a large series of hospitals, and the former continues to announce building plans. Doubtless the closing hospitals are not exactly what are ideally required for the veterans, but the statements from various headquarters suggest that they have never met each other.

Swetlow and Florman, writers for the trade journal "Medical Economics," have warned the profession about the liability of a physician who uses "experimental" treatment. . . . New procedures are not necessarily experimental, what with th speed with which drugs and methods are reported. If it has been successfully used in similar cases by more than one physician, and the results had been reported in a reputable publication, the use is legitimate. The question is then whether the physician has experimented PROPERLY. . Protection of the doctor may be obtained by obtaining corroboration of qualified physicians on the advisability of the therapy; have qualified medical witnesses; get the patient's consent in writing, and be sure that the statement makes clear that the procedure is experimental and that certain risks are involved.

Stevens of Washington, D. C., has called attention to ABDOMINAL EPILEPSY, a condition which is considered less often than it occurs. The diagnosis has several requisites—a periodic pain of sudden onset which lasts from seconds to a few hours; it is not often accompanied by nausea, vomiting, or fever; the attacks are not due to known dietary indiscretions or psychogenic factor; there is a coexisting convulsive disorder of some degree; the electroencephalogram is abnormal; and anticonvulsive therapy controls the entire syndrome.

The relation of current MEDICAL BOOKS to current topics is obvious in the following list—"The Sexual Criminal" by Paul de River; "Streptomycin and Dihydrostreptomycin in Tuberculosis" by Riggins and Hinshaw; and "B.C.G. Vaccination in Theory and Practice" by K. N. Irvine; "Physiology of Heat Regulation and the Science of Clothing" by L. H. Newburgh.

The November issue of The Journal of Pediatrics contained a report of successful therapy of infectious mononucleosis with chloromycetin (chloramphenicol). The child improved on brief therapy, relapsed, and was quickly cleared of the condition again on re-treatment .. . . This not only indicates a method, but points to an etiology (viral).

The AMA "Principles of Medical Ethics" was revised this past June. Some of the obsolete material was deleted; some of it was revised; and a few of the 44 sections are new. . . . The physician now has guides to the wider limits to which he may go in speaking or publishing medical material. He is forbidden to enter an actual consultation with a cultist. He may participate in a contract where there is no free choice of a physician, under certain conditions. . . . More difficult, in a health resort area, is the stipulation which requires one M. D. to refuse care to a patient until patient's former doctor has been dismissed. Distasteful but well-defined is the rule that one is duty-bound to expose a colleague to his medical group if he is known to be guilty of simple incompetence, dishonesty, or unethical conduct. In addition, he is now expected to expose illegal conduct to officers of the law. . . . The duty of a

physician to inform the patient or his family of progress is clarified, but the question of how frank a consultant may be with the patient is still contradictory.

Antihistamine drugs were reported to depress the tuberculin skin-test reaction in animals. It looked like a good way to control hypersensitivity in the lesions of man. We held up a comment on it for months. Now there are two reports describing ineffectiveness in tuberculous individuals.

PERCORTEN.—Something is in the air, and it may or may not be perfumed. If it isn't, we are going to be pretty mad at the Ciba company. . . Doctors have been told that desoxycorticosterone is no substitute for "cortisone." The former is used for Addison's disease, and the latter for arthritis, etc. . . . Now Ciba is publishing the contradictory results obtained by several groups who have used "PERCORTEN" (desoxycorticosterone acetate) accompanied by ASCORBIC ACID (vitamin C) in patients with arthritis. . . Perhaps this is fair, but somewhat like shooting sitting ducks. The medical public is hopeful but not completely certain about the new adrenal drugs, and unless the stuff is surely good it might better be held up until the evidence is definite.

REPORT TO THE PRESIDENT AND COUNCIL OF THE ARIZONA MEDICAL ASSOCIATION

Report to the President and Council of the Arizona Medical Association on the visit of Dr. Arthur J. Present, Chairman of the Professional Board, to the Congress on Medical Education and Licensure and to the Associated State Postgraduate Committees' Meetings, Chicago, February 3 through February 7, 1950.

It is well worthwhile that a representative be sent at state expense to attend these meetings. In the first place it seems only fitting and proper that this state be represented in all national activities, allowing that individual to bring back to the state organization such ideas and inspirations as he can attain from contact with those best versed in their fields. It is interesting to know that the problems are not so different and at times to find that some differences from the general over-all picture are applicable to our own state. Furthermore, one can meet the individuals who are doing things. A contact has been established and direct information may then be obtained from the best sources. Further, I think it a little too self-effacing not to send representatives to these meeings. The only way that we can grow in stature nationally is to let it be known that we are interested in what is going on at the national level.

As indicated in the enclosed programs the meeting of the Associated State Postgraduate Committees was held on February 4, 1950 at 2 P. M. Dr. Parkins, who is apparently the president of the Massachusetts Postgraduate Organization, and who has been the head of this committee and a founding member, presided. From what I gather, the following are the facts relative to this committee. It was in about 1929 that Dr. Parkins started investigating the extension work at Harvard and tried to find out during the course of the next three years why it was that so few doctors came to the Harvard Postgraduate courses. It was at the end of that study that this committee was founded. Its purpose was to get a common ground for the exchange of ideas relative to postgraduate education which apparently meets with some resistance, at least a lack of enthusiam, throughout the outlying counties in most states. It is found in most of these states that there is a decreasing response in successive years. It was relative to this whole problem that the organization was founded and it is certainly worthy of our support. The formal organization began in 1937, based on the reports of the New York State and the Michigan State Postgraduate committees. Dr. Parkins discussed the changing concepts of postgraduate medical education. His main points were: He felt that organized medicine has a direct obligation to see that postgraduate education is available and continued. It is their responsibility to provide instructors. Dr. Parkins also felt that the sectional method of instruction is probably the best and he rather hopes that not only will there be sections in the states which are covered by clinics and seminar groups but also that the whole country will be divided into areas so that we can organize a fairly cooperative plan somewhat like the army corps area system. He discussed the Kress Foundation grants which are now available for postgraduate medical education. Not much has been expended as

yet but that foundation, originally used for the furtherance of art, has apparently now been placed at the disposal of postgraduate educational groups. Most of it is being used through medical schools but I understand that the state of Pennsylvania has been able to obtain a small grant from this organization. The speaker felt that most medical men need leadership to guide them through the maze of the newer medical knowledge for few have an inherent latent enthusiasm to dig through it for themselves and therefore they are denying themselves and their patients these advantages. He feels that it is our problem as one means of combating socialized medicine to publicize the fact that we are giving these educational programs and distributing medical knowledge to the doctors in the local communities. He mentioned the fact that available for us are the various medical schools, such as the University of Colorado and the Southern California schools in our instance, but also that we should make use of the American Colleges of Surgery, Pediatrics, and now of General Practice. He felt that it was important that this knowledge be disseminated for he had read recently that 85% of surgery was being done by general practitioners and they certainly could stand whatever little training might be provided. He felt that the hospital trustees have a definite obligation as well, not only to their interne and resident programs but also to all physicians, and he feels as the undersigned feels that the state society should push this type of improvement of hospital training program for all. Representatives of the American Academy of General Practice were at this meeting, including Mr. Mac F. Cahal who is the executive secretary. They brought out the fact that the American Academy of General Practice requires 150 hours every three years in postgraduate training, at least 100 hours of which must be under proper auspices. State medical society meetings and hospital staff organizations as well as seminar work are considered satisfactory evidences of such "proper auspices."

The next speaker noted on the program as the fourth item of business was Dr. Charles Wm. Smith, Chairman of the Commission on Graduate Education of the Medical Society of the State of Pennsylvania, and their program is a broad comprehensive one. He spoke on the role of the state medical society in postgraduate education making the essential points that their state program consists of their annual meeting, their county medical meetings as in our state, and also sectional meetings as indicated in the enclosed brochure of the Graduate Education Institute of The Medical Society of the State of Pennsylvania which is the only copy I have and which I sincerely trust will be returned. He felt very strongly that the Journals are not the answer to the problem because the articles are not all good, time is limited and doctors just do not read them. He feels that the state societies might well cull the recent developments and submit them in either a brochure form or through widespread seminar plans. They use a fee for course plan and charge a fee that is fairly high compared to ours. They have a central committee which has a fairly handsome budget from the state society and it is not made up of one or two individuals but is made up of several enthusiasts of whom I am certain Dr. Smith is the leader. The local autonomous county medical societies can request any help they wish from this state board or committee and in general it has worked satisfactorily. Their planned program with refresher courses until now has usually taken one day a week and they send speakers to eleven points in the state. About 10% of the membership of the state society is all that they reach. Next year they are dropping the refresher type of course and instead are pushing twenty subjects, one in the morning and one in the afternoon, twice a year, so that in a five-year program all of these twenty subjects will be covered. It is felt that their experience is not unlike the experience elsewhere that the didactic type of course is falling off in its acceptance and response. They pay the people who lecture from $50 to $75 per day and their expenses.

In the discussion period Dr. Bibler, who is president I believe, or at least head of the Postgraduate Education Program of The American Academy of General Practice, said that any program must be good and it must be attractive if it is to be worthwhile. He felt that panel discussions are most conducive to disseminating information and he thought that dinner meetings are very important for doctors are so often busy, yet they do have to take time to eat.

As a result of this meeting I should like to recommend the following as suggestions in our postgraduate education program in the state of Arizona. First, I think that we should pay the very small fee of $25.00 to support the work of

the Postgraduate Committee whose meeting I attended. On the basis of many of the ideas suggested here it would seem that our state is not too different from others and therefore that we may use some of the ideas presented at this meeting. It was felt imperative to cut down on the number of meetings and I think that all practicing physicians in the state would agree. In order to meet the obligations and requirements of The American College of Surgeons the staff meeting deal has become burdensome. Any possible way in which our educational program can be worked in conjunction with staff meetings or with county medical meetings would undoubtedly stimulate a better response. I believe that program teachers should be limited to good teachers and not just to "names." It was felt that the success of the entire program depended largely on the caliber of the teachers. Didactic methods of teaching are certainly bringing out decreasing response throughout the country and clinical and panel discussions help. Furthermore, these are a good source of publicity for the medical profession as a whole. In clinic discussions we might utilize the abilities and the available diagnostic factors in the local areas to "work up" cases, bring in outsiders and have a general discussion relative to those cases and to the recent advances in medicine which are applicable there and in adjacent fields. This type of clinic teaching seems to be well accepted, well received and thoroughly enjoyed, particularly when the doctors in the outlying communities can "hang one on" the visiting specialist. Furthermore, I think that all meetings within the state, no matter what the nature of the meeting other than perhaps a hospital staff meeting of routine nature, should be publicized through a state bulletin. I do not believe that the state journal is an adequate medium for the publicity is too delayed, but if possible it might be well to have a clearing station or center either in the state office or at some other headquarters where all of the veterans' hospital programs which are excellent and the county medical programs which are now improving continually, and any other medical meetings of note will be recorded. That information should be widely disseminated throughout the state promptly. I think this is one of the most important features of successful programs. That the general practitioner should have the advantages and that it is our responsibility is not questioned. Since the country as a whole has about 110,000 general practitioners and 40,000 specialists it is obvious that the activities of organized medical groups and particularly the American Academy of General Practice should be encouraged. They have a state organization in Arizona and I believe it should be contacted relative to its ideas in postgraduate medical education.

On the following day, namely, Sunday, February 5, began the first of a series of lectures, a program of which is enclosed, and which covered the general subjects of medical education and licensure. On Sunday morning the discussion relative to the evaluation of the qualifications of candidates for certification by American Boards in the specialties was most interesting but does not apply to state level, I believe. The meeting was attended and one was impressed mostly I think by the thoroughness with which these Boards, and in particular the American Board of Internal Medicine as represented by Dr. Victor W. Logan, M. D. of the University of Rochester Medical School in Rochester, New York, are trying to be fair, honest and to certify only those individuals who are actually deserving and yet denying certification to none who may appear before them.

On Monday, the Council on Medical Education and Hospitals began its series of meetings. Of importance I believe in the session at 9:30 on Monday morning were the papers relative to the location of a medical school, considerations in favor of locating a medical school on a university campus or in a metropolitan area. This controversy was extremely interesting and I certainly think that should the state of Arizona in the reasonable future consider a medical school many of the arguments, and many of the financial problems, and many of the facts relative to this situation could be obtained without too much difficulty both from the published articles and from the individuals in question. The material presented was extremely interesting, and as the speakers concluded it would seem to this observer that there are advantages in both types but that a metropolitan school probably has many more advantages than the localization of a medical school on the campus of a very small university. Neither Tucson nor Phoenix, it would seem to me, are too small at the present moment to consider the possibility of building a medical school. With modern transportation the populations that either of these communities could draw

upon would be adequate clinical material I feel fairly certain. Further statistics could be obtained from these men and they seem to be critical individuals to give us that further information. With reference to this it seems wisest that one refer for further information to the report of Dr. Verne Lippard, who is now the dean of the medical school at the University of Virginia. His survey of the Florida situation apparently is the basis for much of the argument pro and con, and apparently it is a very excellent review. I don't know where it is published but apparently it is available, and if further information is desired Dr. Lippard should be contacted and a reprint of his report requested.

On Monday afternoon the panel discussion on the place of the specialties in undergraduate medical education again has nothing of importance as far as the state level is concerned. However, it seems fair to state that medical education in Great Britain is certainly in a very sad situation, and as far as teaching the specialties in this is concerned, there seems to be no unanimity of opinion as to the distribution of weight for one specialty versus another, and it always seemed that the surgeons and the internists gained the upper hand.

The meeting on Monday evening consisted of a dinner with a talk on how can medical education help solve problems of medical care. I felt that it was the unanimous opinion of all those who attended, including myself, that no information relative to this subject was available from this speaker and that little was gained by the meeting.

The meetings of Tuesday were quite interesting and apply more to the interstate reciprocity problems of licensing boards. I do not believe that very much can be done short of legislation, and this is a problem for those boards, and I feel very keenly that the State Board of Medical Examiners of Arizona was not represented, for these were very pointed and very useful remarks.

Respectfully submitted,

Arthur J. Present, M. D.
Chairman, Professional Board,
Arizona Medical Association.

DOSAGE CONTROL IN ANTICOAGULANT THERAPY

With the increasing usage of the anticoagulants in therapy of the thrombo-embolic diseases and the extension of this type of therapy from the hospital to the ambulant patient, the problem of accurate dosage control has become quite evident. This is particularly true of Dicumarol which is the anticoagulant which is most frequently given to ambulant patients and often for long periods of time. Also overdosage is more dangerous and harder to combat than an overdose of heparin. Heparin is eliminated rapidly and the effects of an overdose are dissipated within a few hours after discontinuance of the drug, while the effects of Dicumarol may persist for a week to ten days after stopping the drug unless counteracting measures are taken.

A number of systems have been suggested for control of the dosage of Dicumarol, but the only one of any practical significance at this time is the one in almost universal use; the estimation of the prothrombin content of the blood or the "prothrombin time." A review of the literature and conversations with physicians who are prescribing anticoagulants reveal much confusion concerning the value, reliability, and interpretation of this procedure, and especially in its relation to the regulation of the dosage of Dicumarol. It is in the hope of clarifying the present status of the situation that these few remarks are presented.

The value of the test rests on the observation that Dicumaro l reduces the prothrombin content or the prothrombin activity of the blood. If this content is reduced to ten per cent or below, dangerous hemorrhage may occur. A percentage of thirty or more is considered safe. The actual therapeutic level lies between these limits and as a matter of fact is kept around twenty per cent in most cases.

Two methods of prothrombin determination have come into use. Both have many modifications. The two-stage method of Warner, Brinkhous, and Smith is a long and complicated procedure and its use is confined chiefly to large research laboratories. It can be disregarded in the clinical field then except that the reader should be told that the prothrombin values obtained by this method do not correspond with the values obtained in the usual clinical methods and these values can be confusing when encountered in the literature. Unfortunately too, the differences are greater in the lower percentage

range, which is the important and dangerous area in therapy. The direct or one-stage method of Quick or one of its numerous modifications is comparatively simple and is usually employed in the private or hospital laboratory. In spite of its comparative simplicity from a technical viewpoint, and even though it has been in use for several years, actually it is still far from a reliable and standardized test. There are so very many possibilities of technical and personal error that even in the most careful hands the reliability of the test varies from day to day. The numerous modifications, each designed to eliminate or minimize some source of error, have only served to confuse the interpretation of results and this especially holds true in trying to correlate results reported by different laboratories. Different workers use different standard preparations of thromboplastin, giving different normal times. Of course, different groups of sera are used as normal controls by different workers, and at different times by the same worker. Even the manner of collecting the specimen has been shown to affect the ultimate result. The reports from different laboratories are sometimes given in different terms. One may report in prothrombin time in seconds, another in percentage of prothrombin of the normal and another in percentage of normal prothrombin times. Prothrombin times are the most confusing since one laboratory may report normal times of twelve seconds, and another twenty seconds, and both be entirely right for the reagents they are using. Prothrombin percentages are the most satisfactory and easy to correlate provided that the percentage curves are prepared with care for every batch of thromboplastin used.

This situation is not one for which the laboratories can be blamed. The problem is the subject of much scientific research at this time and eventually, I believe, a simple and universally reliable test will be perfected. Until then, what is the physician who needs to use these drugs to do? The obvious answer, of course, is to make the very best use of what he now has available. I offer these few suggestions as to how he may do so.

Do not depend entirely on laboratory control. There is no substitute for careful clinical observation. Severe hemorrhage has occurred even with prothrombin levels in ranges ordinarily considered safe.

Have your prothrombin estimations done in so far as possible by one reliable laboratory and preferably by the same technician. Learn what the values reported mean and use the reports of this laboratory as something familiar to "tie to" in evaluating prothrombin activity.

If necessary to correlate results reported by another laboratory, do not try to compare "prothrombin times" very accurately. The best comparison is through percentages of normal prothrombin activity provided they are based on carefully constructed curves.

Remember that each patient's dosage requirement must be determined individually. Do not be tricked into overdosage by giving one patient a dosage simply because it proved satisfactory for another.

ABSTRACT

Kierland, R. R.; Herrell, W. E., and O'Leary, P. A.: Treatment of Syphilis with Aureomycin Administered by Mouth. Arch. Derm. and Syph. 61:185, (Feb.) 1950.

Seven cases are reported, two patients with early infective (dark-field positive) syphilis, two patients with late noduloulcerative cutaneous syphilis, and three with neurosyphilis. all treated with aureomycin administered by mouth. Total dosage varied from 44.2 to 90.5 gm. Frequent, but mild, untoward reactions appeared.

Results were encouraging and indicate that: (1) Aureomycin exhibits definite antisyphilitic activity, (2) aureomycin should be useful when the patient cannot tolerate penicillin, (3) oral medication has an advantage for certain patients, and (4) the future will determine the proper place of aureomycin in the treatment of syphilis.

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Arizona Blue Shield Blue Cross

Arizona Blue Cross paid a total of $912,674.13 to hospitals for the care of its members in 1949, it is reported by L. Donald Lau, executive director. The payments represented a return to Blue Cross members in hospital services of 87.6 cents out of every dollar paid into the plan during the year, Mr. Lau said. Operating costs for the year were 12.1 per cent of gross income, as compared with 13.1 per cent in 1948. The operating costs have shown consistent decreases as plan enrollment has grown.

The 1949 payments to hospitals covered 14,355 separate hospital admissions, representing 79,738 patient days.

Of the total hospital payments, the twenty Arizona Blue Cross member hospitals received $876,659.10 for 13,361 cases, amounting to 73,041 patient days. Admissions to non-member hospitals represented 6.9 per cent of the total Blue Cross cases for 1949.

Total payments to hospitals since the beginning of Arizona Blue Cross five years ago last October amounted to $2,131,815.87 at the end of 1949.

The $2,000,000 mark in hospital payments was passed last November .

Net enrollment increased from 100,030 at the end of 1948 to 109,832 at the end of last year. The number of Blue Cross cases in hospitals increased 42.7 per cent during 1949, and the number of patient days increased 27.1 per cent. The average length of stay in hospitals during 1949 was 5.49 days as compared with 6.13 days in 1948.

A breakdown of maternity case statistics shows, Mr. Lau said, that maternity utilization constituted 13.4 per cent of all cases in employee groups during 1949, as against 26.9 per cent among non-group subscribers. The non-group subscribers are those who first joined Blue Cross as members of employed groups and who retained their memberships after leaving their groups. This marked differential in utilization was interpreted by Mr. Lau as evidence that there is more of a tendency among non-group members than there is among group members to use Blue Cross in anticipation of the need for a specific hospital service (such as maternity care)rather than for over-all protection against the catastrophic financial aspects of unexpected hospitalization.

Out-patient cases accounted for 14 per cent of all admissions to Member Hospitals last year, and maternity cases comprised 18.2 per cent of the admissions. There was a total of 2,618 maternity cases covered by Blue Cross in 1949 as compared with 1,472 in the previous year.

All officers were re-elected at the annual meeting on March 19, Mr. Lau announced. They are: J. O. Sexson, president of the board of trustees of Good Samaritan Hospital, president; Dr. Preston T. Brown, vice-president; Glenn C. Taylor, vice-president of the Valley National Bank, treasurer, and William J. Wasson, realtor, secretary. All are Phoenix residents.

Elected to the board of directors were Dr. Martin Heidgen, administrator of the Tucson Medical Center; Lloyd C. French, superintendent of the Southside Hospital, Mesa, and Dr. Harry T. Southworth, Prescott. Re-elected to the board were Mr. Taylor, Mr. Wasson, A. S. Gibbons, Yuma; Dr. Brown, and Dr. Jesse Hamer, Phoenix. Continuing members of the board are Charles McCarty, Tucson; Robert A. MacFarlane, Charles Korrick, Carl Muecke, Mr. Sexson, Sister Mary Eucharia of St. Joseph's Hospital, Emmett McLoughlin of St. Monica's Hospital, Dr. Lloyd Swasey, and Dr. Frank Milloy, all of Phoenix, and Sister Agnes Mary, St. Mary's Hospital, Tucson; A. M. Crawford, Prescott; Dr. Harold Kohl, Tucson, and Dr. Hal Rice, Bisbee.

The executive committee, comprising the officers and Sister Mary Eucharia, was re-elected. Mr. Lau and Ned F. Parish, assistant director, were named delegate and alternate, respectively, to regional and national meetings.

In a statement to the board of directors, Mr. Sexson declared that the Blue Cross organization and its member hospitals "have worked toward the common good of the community and the

state. Blue Cross has made on outstanding contribution in helping the people of Arizona provide for themselves a splendid protection against the unexpected expense of hospital care—at a price they can afford to pay.

"We may justly feel proud of an association that is dedicated to the constitutional principle that the government should do only those things for us that we are unable to do for ourselves."

BOOK REVIEW

FROM THE HILLS. By John Zahorsky, M. D., Clinical Professor of Medicine. St. Louis, Missouri. Cloth. $4.00. pp. 388. The C. V. Mosby Company, St. Louis, 1949.

At the behest of his close associates Zahorsky has produced his autobiography.

Born in Hungary in 1871, his ambitious mother and hard-working father brought him to Cleveland, Ohio, at the age of six months. Six years later the family moved to Steelville, in the northeast part of the Missouri Ozarks. There he was reared as a typical Midwestern farmboy, but with Central European overtones. With some financial assistance from his parents, but mainly through his own efforts, he obtained his education, which included the course at the Missouri Medical College (later Washington University School of Medicine) from which he graduated in 1895.

He was of the old school of "self-made" specialists. Circumstances brought him into pediatrics early in his career, and long before he retired, more than fifty years later, he had attained national prominence in his field. As Professor of Pediatrics at St. Louis University he was outstanding as a clinician rather than as a laboratory worker, as his numerous publications on clinical subjects indicated.

His delightful book proves him to be a charming and scholarly man. In it he dwells less on his vocation of medicine than on his avocations of poetry and nature study (especially botany). All through it we find evidence of his refined, gentle nature which proved so useful in his work with his young patients and their delicate mothers.

Those who know St. Louis will naturally be interested in the historical aspects of the book.

As extracurricular reading many a doctor will receive inspiration from "From the Hills."

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PERSONAL NOTES

DR. THEODORE STONE, M. D., Ph. D., Professor of Neurology and psychiatry, Northwestern University, Chicago, Illinois, addressed the Staff of St. Monica's Hospital, Phoenix ,February 16th on "Tremors and Hyperkinesias." The following week he addressed the Staff of Good Samaritan Hospital, Phoenix, on the subject "Functional Complications in Organic Disease and Organic Symptoms in Functional Disease."

DR. JAMES S. SHIPMAN, attending surgeon of Wills Eye Hospital, Philadelphia, Pennsylvania, spoke to the Staff of Good Samaritan Hospital, Phoenix, February 27, 1950 on "Retinal Detachment." He showed a colored movie of the operation for correction of this defect.

A series of lectures on Medical Jurisprudence for the Staff of Good Samaritan Hospital, Phoenix, was inaugurated by introductory remarks February 27, 1950 by **FRANCIS DONOFRIO,** Judge of Maricopa County Superior Court, and **MR. YOUNT,** attorney for the Industrial Commission.

DR. MAURICE RICHTER, Phoenix, attended the Los Angeles County Radiological meeting in Los Angeles February 18th and 19th.

A Professional Conduct and Grievance Committee of Maricopa County Medical Society has been appointed by President **HENRY WILLIAMS,** of the Maricopa County Medical Society. Chairman of the committee is **DR. J. M. GREER,** Phoenix. Others members are **DR. GEORGE B. IRVINE,** Tempe, and **DRS. KENT THAYER, R. H. CUMMINGS, O. L. BENDHEIM, G. GILBERT** and **M. ROBB,** all of Phoenix.

DR. REED SHUPE, Phoenix, and **DR. ROYAL W. RANDOLPH,** Tucson, have been appointed to the State Board of Health by Governor Garvey.

DR. LLOYD K. SWASEY, Phoenix, recently appeared as a witness before the State Legislators in behalf of the further appropriation of funds to expand the State Tuberculosis Sanatorium.

The Scientific program of the March 6th meeting of the Maricopa County Medical Society was a Tuberculosis Forum. **DR. JAMES P. WARD,** Phoenix, Arizona State Director of Public Health, led off with "Our Arizona Tuberculosis Problem." He was followed by **DRS. B. L. SNYDER,** Phoenix, on "Recent Advances in Medical Therapy;" **DR. HOWELL RANDOLPH,** Phoenix, on "Recent Advances in Surgical Therapy," and **DR. LLOYD K. SWASEY,** Phoenix, on "Treatment of Tuberculosis in our State Sanatorium."

DRS. CARLOS CRAIG and **PRESTON BROWN,** Phoenix, recently attended the Blue Shield-Blue Cross National Convention in Montreal, Canada, representing the Arizona Plan.

DR. SAMUEL I. ROTHMAN, Phoenix, who has been practicing at 1617 East McDowell Road, is ill in Papago Park Veterans Hospital.

DR. ROSS T. McINTIRE, administrator of the National Red Cross Blood Program, has recently visited Arizona on a tour of regional centers. He spent two days in Tucson, meeting with the Medical Advisory Committee for the Southern Arizona Regional Blood Center. He visited the offices and equipment, and also called on the Veterans Hospital, in company with Major Robert Neurnberg of the 43rd Medical Group at Davis-Monthan Air Base and Dr. George Hartman of the Regional Center.

Dr. McIntire was war-time Surgeon General of the Navy, personal physician to the President, and is now a member of the board of governors of the College of Surgeons.

The Benson Hospital of ten beds, established by **DR. J. M. HESSER,** has now been included in the Blue Cross Hospitals of Arizona. This brings the total of such hospitals in the state to 22.

The **SCHOOL HEALTH COUNCIL** of Tucson, a private organization, has arranged and paid for medical care for 239 school children since September. One hundred and nine were treated for visual difficulties and 57 for heart lesions.

The Board of Control of the **ARIZONA STATE HOSPITAL FOR THE INSANE** has requested through Governor Dan Garvey, that the U. S. Mental Health Institute make a survey of the institution. The Institute will set up standards, and might give a "provisional accreditation" until the Hospital meets the standards.

Dr. Riley Guthrie of the Institute will come to Arizona in April.

The Yuma County Board of Supervisors has voted to purchase the addition to the **YUMA GENERAL HOSPITAL** which was built by the Federal government during the war. The price is to be $45,000, about one-fifth of the cost.

Dr. E. J. Tiffany, senior surgeon of the U. S. Public Health Service, has completed an inspection of the facilities of the **ARIZONA STATE DEPARTMENT OF HEALTH LABORATORIES.** He

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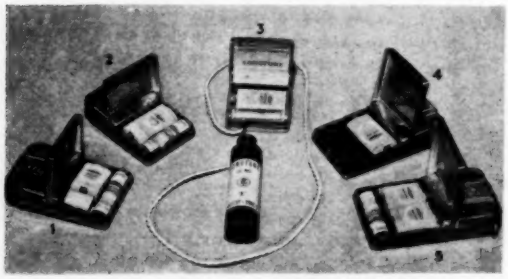

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has recommended an increased working space, new equipment, and additional personnel to fill the present needs.

At the time this is written, Senators Sam Head of Yavapai and Joseph Mansfield of Yuma have introduced a bill to appropriate $85,000 for the construction and equipping of a state laboratory.

The controversial addition or replacement for a state tuberculosis hospital has been revived, with a bill by Senators Head and Mansfield for $500,000 for that purpose.

DR. HOWARD D. COGSWELL of Tucson attended the winter meeting of The Central Surgical Society in Chicago.

GYNECOLOGICAL CLINIC AT HOSPITAL

The Arizona State Hospital has established a Gynecological Clinic for its patients.

A group of old and new patients is examined weekly, and particular stress is placed on tumor diagnosis, each patient having a Papanicolau smear taken.

In essence, it is a tumor clinic for women patients. The gynecological work is under the direction of Dr. Henry A. Siegal, and the cytological and other pathological interpretations are done by Dr. Harold Wood.

It is hoped that in the near future a tumor clinic for male patients will be started.

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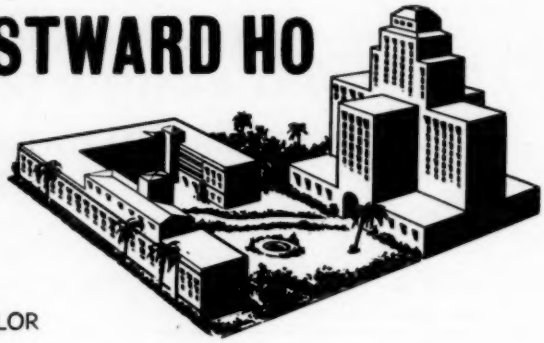

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WOMAN'S AUXILIARY

MRS. ALFRED HELDOBLER

Mrs. Alfred Heldobler is Publicity Chairman for the Pima County Medical Auxiliary. She was born in Stanley, Wisconsin and was graduated from the Southern Oregon Normal School and the Behnke-Walker Business College. She taught school and after her business training, was a medical secretary in Portland. In 1940 she married Dr. Alfred Heldobler, who is a graduate of the University of Oregon Medical School. Following war duty, Dr. Heldobler spent three years in orthopaedic residency at the University of California, following which they moved to Tucson.

Mrs. Heldobler is active in Red Cross Gray Lady work at the Veterans Hospital and has participated in community and Red Cross drives.

Dr. Heldobler is associated with Dr. Robert Hastings in Tucson in the practice of orthopaedic surgery.

PIMA COUNTY

The monthly meeting of the Pima County Medical Auxiliary was held Tuesday evening at the Santa Rita Hotel. Following the business meeting Wm. B. Pyle entertained the group with a very amusing talk.

A motion was made that Mrs. Darwin Neubauer, Philanthropic Chairman, and committee investigate and decide on some worthwhile project for which auxiliary funds are available.

The Nominating Committee, composed of Mmes. E. M. Hayden, Max Palmer and F. J. Lesemann, recommended the following members for officers of the Pima County Medical Auxiliary for the fiscal year 1950-51:

Mrs. Brick Storts, President-elect
Mrs. Leo Kent, 1st Vice-president
Mrs. Richard Hausmann, 2nd Vice-president
Mrs. Darwin Neubauer, Recording Secretary
Mrs. David Engle, Corresponding Secretary
Mrs. Kenneth Baker, Treasurer.

Hostesses for the refreshments were: Mmes. George Fraser, Chairman; Edward Hayden, George L. Dixon, A. L. Lieberman, J. B. Littlefield, Wm. Manning, C. J. Newcomb, George Shetter, B. P. Storts, M. M. Mandel, H. J. Stanford and Clyde Flood.

Mrs. Harry T. Southworth, Prescott

(Continued on page 62)

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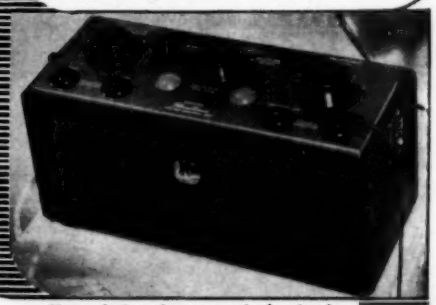

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MRS. HARRY T. SOUTHWORTH

Mrs. Harry T. Southworth has served as state president of the Woman's Auxiliary to the Arizona Medical Association. She has served as president of the Yavapai County Auxiliary and has held several offices and served on many committees in both the state and county auxiliaries.

This year Mrs. Southworth is giving much time to crippled children. She is secretary of the Yavapai Chapter, Arizona Society for Crippled Children, and is chairman of the Hearing Conservation program in Yavapai county.

The Senior and Junior High School Parent-Teacher Associations both claim a good deal of Mrs. Southworth's time as she is holding an office in each organization. The Southworths have two children, Tom, seventeen, and Kathryn, twelve.

YAVAPAI COUNTY

The Woman's Auxiliary to the Yavapai County Medical Society has been very busy this year, not with any one project but with many.

At Christmas time, the Auxiliary secured and decorated three large trees for the Community Hospital. It also provided tray decorations to be used throughout the hospital for Christmas dinner. Food was supplied for three needy families and clothing and toys given to twenty-four children.

Our members have given much time and effort in the development of the program of the Children's Retreat, a resident home for children suffering from asthma.

Individual members of the Auxiliary are giving much time to the Crippled Children's program, the Well-Baby Clinic, and to sewing for the Red Cross.

The annual rummage sale for the benefit of the service and welfare fund was held March third and fourth. Funds raised by this sale will be used for contributions to several general and local service projects.

This year, as in the past, whenever the Auxiliary has been approached with the need of food, clothing or fuel for families, it has responded.

The Yavapai County Auxiliary consists of seven active members and nine associate members of Whipple. We feel that the projects undertaken are noteworthy because of the small membership. Much credit goes to the associate members of Whipple for their active interest in the Auxiliary.

Margaret O. (Mrs. H. T.) Southworth,
Publicity Chairman.

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